SI Materials and Methods for "Switching Processes in Financial Markets"

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Test of the Power-Law Hypothesis

Using linear regressions, we are able to fit power-law curves to empirical data sets, and obtain thus an estimate of the scaling parameter β. However, this procedure does not prove that there is indeed a power-law underlying. Irrespective of the true functional law, underlying the process generating the empirical data, it is often possible to fit them in seemingly good agreement to a power-law graph. We need to find out whether the fit is a good match to the data. To achieve this, we test the power-law hypothesis quantitatively [1]. The fact that distributions seem to be roughly straight on the log-log plot is a necessary but not sufficient condition for power-law behavior of the data. Unfortunately, there is no straightforward way to prove whether the underlying law is indeed a power-law. Even if data are sampled from a power-law distribution, their observed distribution is unlikely to exactly follow the power-law form. There will always be some small deviations caused by the random nature of the sampling process. As described in [1], the challenge is to distinguish between deviations of this type and those that arise because the data are drawn from a non-power-law distribution.

For the test of the power-law hypothesis, we use the following approach: a large number of synthetic data sets are sampled from a true power-law distribution. The extent to which these synthetic data sets deviate from the power-law form is then measured, and these distances are compared to the results of the same measurement for the empirical price time series. If the deviation of the empirical data set from the power-law is larger than corresponding deviations of a specific fraction of synthetically created data sets, then the power-law is not a plausible fit to the data set. As a measure for the distance between distributions, we use the Kolmogorov-Smirnov (KS) statistic [2], which is simply the maximum distance between the cumulative distribution functions (CDFs) of the empirical data $v^*(x)$ (or $\tau^*(x)$) and the fitted model $q(x) = Cx^\beta$:

$$D = \max_{x_0 \leq x \leq x_{\rm cut}} |V^*(x) - Q(x)|. \qquad [1]$$

Here, C is a constant, $V^*(x)$ is the cumulative distribution function (CDF) of the empirical data $v^*(x)$ for the observations with values on the interval $[x_0, x_{\rm cut}]$, and $Q(x)$ is the CDF of the power-law model $q(x)$ that provides the best fit to the data in this region. The variable x represents $|\varepsilon - 1|$.

First, we fit our empirical data $v^*(x)$ to the power-law model using linear regression, determining the value of the scaling parameter β. For this fit, we calculate the KS statistic. Next, we generate a large number of power-law distributed synthetic data sets with scaling parameter β as follows: a power-law distribution $q(x)$ is generated from a uniform distribution $q(y)$ with $q(x) = Cx^\beta$ for $x \in [x_0, x_{\rm cut}]$. Then, normalization requires

$$\int_{x_0}^{x_{\rm cut}} q(x)dx = C\frac{\left[x^{\beta+1}\right]_{x_0}^{x_{\rm cut}}}{\beta+1} = 1. \qquad [2]$$

Thus, the constant C is given by

$$C = \frac{\beta+1}{x_{\rm cut}^{\beta+1} - x_0^{\beta+1}}. \qquad [3]$$

Let Y be a uniformly distributed variate on the interval $[0, 1]$. Then,

$$\int_{x_0}^{x} q(x')dx' = C\int_{x_0}^{x} x'^\beta dx' \qquad [4]$$

$$= \frac{C}{\beta+1}\left(x^{\beta+1} - x_0^{\beta+1}\right) \equiv y, \qquad [5]$$

and the variate given by

$$x = \left(\frac{\beta+1}{C}y + x_0^{\beta+1}\right)^{1/(\beta+1)} \qquad [6]$$

$$= \left[\left(x_{\rm cut}^{\beta+1} - x_0^{\beta+1}\right)y + x_0^{\beta+1}\right]^{1/(\beta+1)} \qquad [7]$$

is distributed as $q(x)$ [2, 3]. Using Eq. 7, we generate 1000 synthetic data sets and fit each data set individually to its own power-law with its own values for C and β. Then, the KS statistic is calculated for each one. The parameter x_0 is the first measuring point closest to the switching point at $\varepsilon = 1$. The right border of the fitting region is $x_{\rm cut} \equiv |\varepsilon - 1|_{\rm cut}$. As a conservative approach, one synthetic data set contains $T_i(x_{\rm cut} - x_0)$ power-law distributed data points, where T_i denotes the number of empirical observations. The number of effectively used empirical transactions is marginally smaller, as microtrends have to fulfill the requirements that time intervals between successive trades not be longer than one minute and transaction volumes not be larger than 100 contracts.

After the generation of 1000 synthetic data sets, we simply determine the fraction of time for which the resulting statistic is larger than the same value for the empirical data. This fraction is our p-value. It is of crucial importance that for each synthetic data set we compute the KS statistic relative to the best power-law fit for that data set. Thus, we ensure that we are performing for each synthetic data set the same calculation that we performed for the empirical data set. Once the p-value is calculated, a decision must be made concerning

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whether it is small enough to rule out the power-law hypothesis or whether the hypothesis is a plausible one for the data in question. If the p-value is close to 1, then the difference between the empirical data and the model can be attributed to statistical fluctuations alone. If the p-value is small, the model is not a plausible fit to the data.

In our calculations, the relatively conservative choice was made that the power-law is ruled out if the p-value is smaller than 0.1. Tables 1, 2, and 3 provide the p-values for the empirical data shown in Figs. 2D, 2E, and 2F as a function of $|\varepsilon - 1|_{\mathrm{cut}}$. The second largest value of $|\varepsilon - 1|_{\mathrm{cut}}$, for which the power-law hypothesis cannot be ruled out, is used as a limit for the fitting intervals in Fig. 2.

The results of the statistical test shown in Tables 1, 2, and 3 confirm consistency with power-law distributions.

Dow Jones Industrial Average Index Components

We perform a parallel analysis of the assets contributing to the *Dow Jones Industrial Average (DJIA)*. The time series stem from the *Trade and Quote* (*TAQ*) database and cover $2,623,445,866$ transactions, roughly 200 times the length of the *FDAX* time series analyzed before.

The TAQ database makes it possible to study the switching phenomenon of transaction volume on an intraday time scale for all stocks individually[1]. Results for all stocks which we consider can be found in the remainder of this *SI Materials and Methods* section. For each stock, we document the development of the stock price, the aggregated volume as a function of ε, and $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram with two power-law fits. The fitting exponents are reported in the upper right corner. Each fitting range is based on statistical tests identical to those applied in the previous analyses: The shaded intervals mark the region in which the empirical data are consistent with a power-law behavior. The left border of the shaded regions is given by the first measuring point closest to the switching point. The right borders stem from statistical tests of the power-law hypothesis.

As is evident in the presented results, the *DJIA* components confirm our previous findings and provide evidence for power-law exponents between $\beta_v^- = -0.06$ and $\beta_v^- = -0.01$ before the switching point $\varepsilon = 1$ and between $\beta_v^+ = -0.46$ and $\beta_v^+ = -0.12$ after the switching point $\varepsilon = 1$.

1. Clauset A, Shalizi CR, Newman MEJ (2009) Power-law distributions in empirical data. SIAM Rev 51:661–703.
2. Press WH, Teukolsky SA, Vetterling WT, Flannery BP, Numerical Recipes in C: The Art of Scientific Computing (Cambridge University Press, Cambridge, England, 1992).
3. Bennett DJ, Randomness (Harvard University Press, Cambridge, MA, 1998).

[1] The quality of the time stamp is not comparable to that of the *FDAX* time series. Thus, only volume is studied.

Table 1. Statistical test of power-law hypothesis for the $FDAX$ volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

Parameter	Results					
$\|\varepsilon - 1\|_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	-0.161	0	**0.568**	-0.062	0	**1**
0.006	-0.162	0.0001	**0.98**	-0.07	0.0014	**0.609**
0.008	-0.165	0.0007	**0.934**	-0.071	0.0011	**0.837**
0.01	-0.169	0.0017	**0.722**	-0.074	0.0014	**0.773**
0.012	-0.172	0.0021	**0.637**	-0.075	0.0016	**0.707**
0.014	-0.173	0.002	**0.679**	-0.074	0.0012	**0.873**
0.016	-0.17	0.0015	**0.873**	-0.074	0.001	**0.934**
0.018	-0.168	0.0012	**0.942**	-0.073	0.0008	**0.965**
0.02	-0.167	0.0014	**0.893**	-0.073	0.0008	**0.981**
0.022	-0.165	0.0018	**0.822**	-0.073	0.0007	**0.977**
0.024	-0.162	0.0021	**0.696**	-0.073	0.0006	**0.992**
0.026	-0.16	0.0027	**0.465**	-0.073	0.0006	**0.992**
0.028	-0.159	0.0031	**0.28**	-0.074	0.0006	**0.998**
0.03	-0.157	0.0034	**0.181**	-0.073	0.0005	**1**
0.032	-0.155	0.0038	0.065	-0.073	0.0005	**0.998**

Table 2. Statistical test of power-law hypothesis for the volume time series of S&P500 stocks: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

Parameter	Results					
$\|\varepsilon - 1\|_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.04	-0.084	0	**1**	-0.055	0	**1**
0.06	-0.098	0.0023	**0.272**	-0.052	0.0005	**0.792**
0.08	-0.111	0.0042	0.032	-0.053	0.0003	**0.981**
0.1	-0.113	0.0038	0.046	-0.053	0.0002	**0.997**
0.12	-0.115	0.0034	0.061	-0.054	0.0003	**0.999**
0.14	-0.116	0.003	**0.134**	-0.054	0.0003	**0.999**
0.16	-0.114	0.0026	**0.208**	-0.053	0.0007	**0.917**
0.18	-0.113	0.0023	**0.288**	-0.052	0.0008	**0.927**
0.2	-0.115	0.0021	**0.384**	-0.05	0.0015	**0.413**
0.22	-0.115	0.002	**0.435**	-0.048	0.0022	0.087
0.24	-0.115	0.0018	**0.516**	-0.047	0.0024	0.047
0.26	-0.114	0.0017	**0.618**	-0.047	0.0023	0.047
0.28	-0.113	0.0016	**0.625**	-0.046	0.0023	0.038
0.3	-0.112	0.0016	**0.651**	-0.045	0.0023	0.027
0.32	-0.11	0.0016	**0.66**	-0.044	0.0024	0.024
0.34	-0.109	0.0018	**0.463**	-0.044	0.0023	0.033
0.36	-0.107	0.0023	**0.151**	-0.043	0.0022	0.019
0.38	-0.106	0.0026	0.062	-0.042	0.0023	0.012

Table 3. Statistical test of power-law hypothesis for the FDAX inter-trade time series: Scaling parameters of the hypothesized power-law model are shown for both $\tau^*(\varepsilon)$ before (β_τ^-) and $\tau^*(\varepsilon)$ after (β_τ^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

Parameter	Results					
$\|\varepsilon - 1\|_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.04	0.089	0	**1**	0.097	0	**1**
0.06	0.096	0.0013	**0.21**	0.089	0.0013	**0.195**
0.08	0.105	0.0028	0.002	0.095	0.0013	**0.24**
0.1	0.112	0.0034	0	0.098	0.0016	**0.166**
0.12	0.115	0.0034	0	0.095	0.001	**0.538**
0.14	0.116	0.0031	0	0.096	0.0009	**0.708**
0.16	0.114	0.0025	0.01	0.096	0.0008	**0.837**
0.18	0.116	0.0023	0.023	0.095	0.0007	**0.928**
0.2	0.118	0.0025	0.006	0.094	0.0008	**0.885**
0.22	0.119	0.0025	0.008	0.094	0.001	**0.762**
0.24	0.12	0.0027	0.001	0.093	0.0011	**0.632**
0.26	0.121	0.0025	0	0.093	0.001	**0.749**
0.28	0.121	0.0025	0.002	0.092	0.0011	**0.714**
0.3	0.121	0.0023	0.008	0.091	0.0013	**0.435**
0.32	0.121	0.0021	0.042	0.089	0.0022	0
0.34	0.121	0.0019	**0.114**	0.089	0.0021	0.003
0.36	0.12	0.0017	**0.192**	0.088	0.0023	0
0.38	0.12	0.0016	**0.331**	0.087	0.0025	0
0.4	0.12	0.0015	**0.447**	0.087	0.0024	0
0.42	0.119	0.0014	**0.585**	0.087	0.0024	0
0.44	0.118	0.0013	**0.67**	0.086	0.0025	0
0.46	0.117	0.0014	**0.526**	0.085	0.0026	0

American Express Company Common Stock (AXP). The AXP price time series contains 57,393,316 transactions.

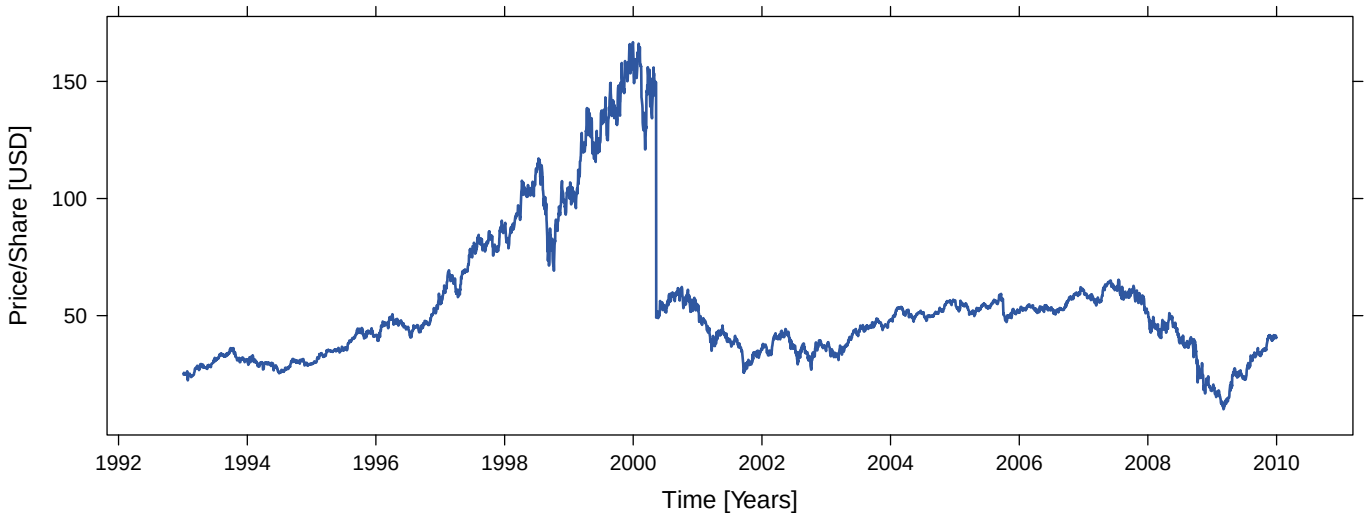

Fig. 1. A stock split occurred on 11 May 2000 [split ratio 3:1].

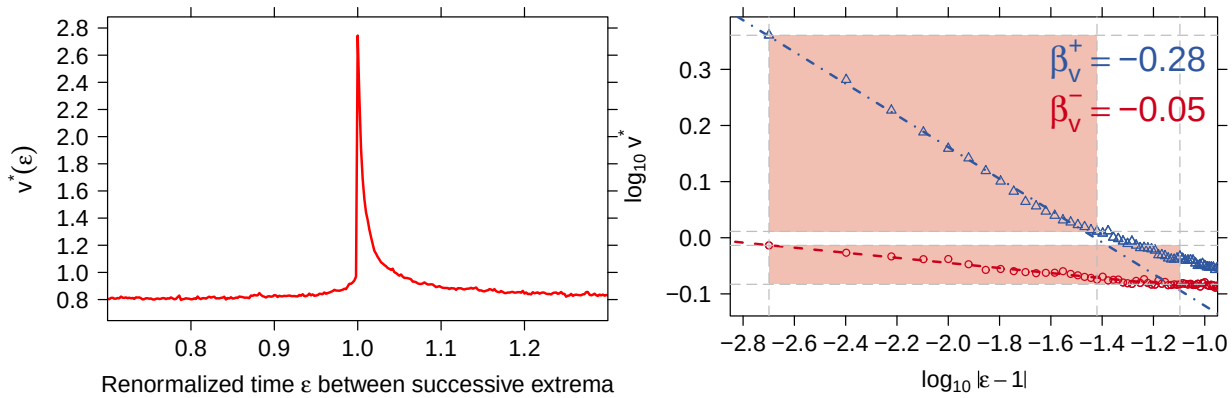

Fig. 2. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 4. Statistical test of power-law hypothesis for the AXP volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\rm cut}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\rm cut}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.262	0	**0.726**	−0.043	0	**1**
0.006	−0.278	0.0025	**0.157**	−0.041	0.0003	**0.821**
0.008	−0.286	0.003	**0.188**	−0.04	0.0002	**0.943**
0.01	−0.29	0.0031	**0.292**	−0.036	0.0015	**0.24**
0.012	−0.287	0.0024	**0.731**	−0.039	0.0007	**0.736**
0.014	−0.288	0.0021	**0.912**	−0.045	0.0025	0.009
0.016	−0.289	0.002	**0.977**	−0.046	0.0026	0.003
0.018	−0.291	0.0023	**0.976**	−0.047	0.0027	0.004
0.02	−0.295	0.0033	**0.713**	−0.048	0.0026	0.001
0.022	−0.295	0.0033	**0.813**	−0.049	0.0024	0.008
0.024	−0.295	0.0031	**0.903**	−0.048	0.0022	0.005
0.026	−0.295	0.0027	**0.985**	−0.047	0.0019	0.01
0.028	−0.294	0.0024	**0.999**	−0.046	0.0017	0.039
0.03	−0.292	0.002	**1**	−0.045	0.0015	0.055
0.032	−0.29	0.0018	**1**	−0.045	0.0015	0.063
0.034	−0.287	0.002	**1**	−0.045	0.0014	0.081
0.036	−0.285	0.0029	**0.988**	−0.045	0.0013	**0.118**
0.038	−0.282	0.0037	**0.623**	−0.046	0.0012	**0.136**
0.04	−0.279	0.0044	0.042	−0.045	0.0012	**0.153**
0.042	−0.276	0.0055	0	−0.046	0.0011	**0.191**
0.044	−0.273	0.0061	0	−0.046	0.001	**0.235**
0.046	−0.271	0.0067	0	−0.046	0.001	**0.27**
0.048	−0.269	0.007	0	−0.046	0.0009	**0.313**
0.05	−0.267	0.0074	0	−0.047	0.0009	**0.364**
0.052	−0.264	0.008	0	−0.047	0.001	**0.278**
0.054	−0.262	0.0083	0	−0.047	0.0008	**0.451**
0.056	−0.261	0.0085	0	−0.047	0.0008	**0.489**
0.058	−0.259	0.0088	0	−0.046	0.0008	**0.42**
0.06	−0.256	0.0091	0	−0.046	0.0008	**0.431**
0.062	−0.254	0.0094	0	−0.046	0.0007	**0.465**
0.064	−0.252	0.0096	0	−0.046	0.0007	**0.556**
0.066	−0.251	0.0096	0	−0.046	0.0007	**0.504**
0.068	−0.25	0.0097	0	−0.046	0.0007	**0.447**
0.07	−0.248	0.0097	0	−0.045	0.0007	**0.444**
0.072	−0.247	0.0097	0	−0.045	0.0007	**0.48**
0.074	−0.246	0.0096	0	−0.045	0.0007	**0.477**
0.076	−0.244	0.0098	0	−0.045	0.0007	**0.41**

Boeing Company (The) Common Stock (BA). The BA price time series contains 36,717,524 transactions.

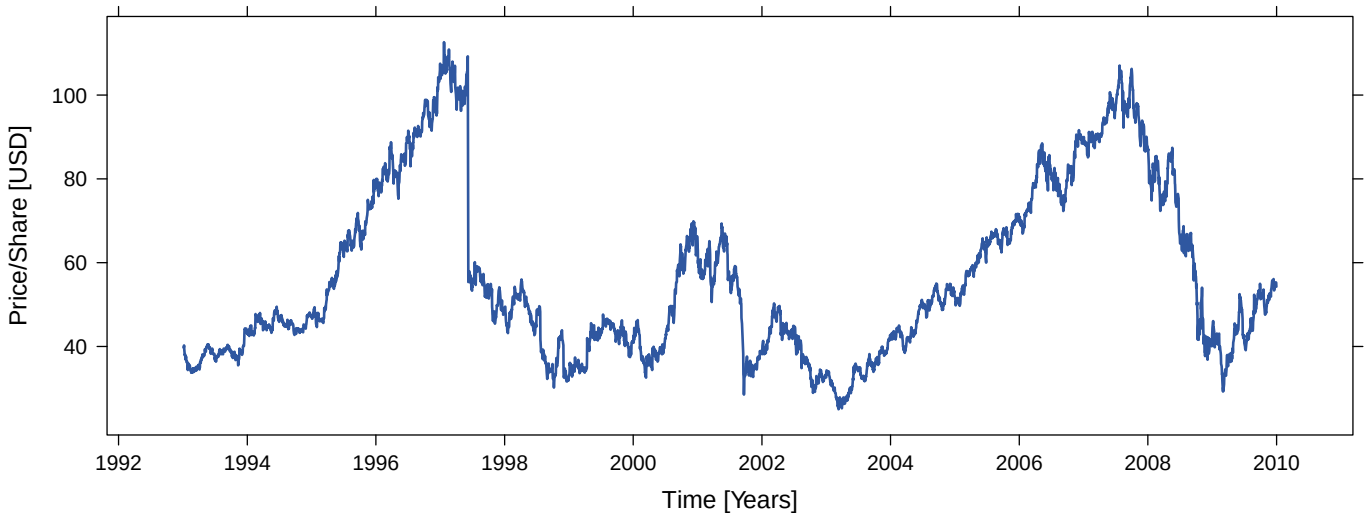

Fig. 3. A stock split occurred on 9 June 1997 [split ratio 2:1].

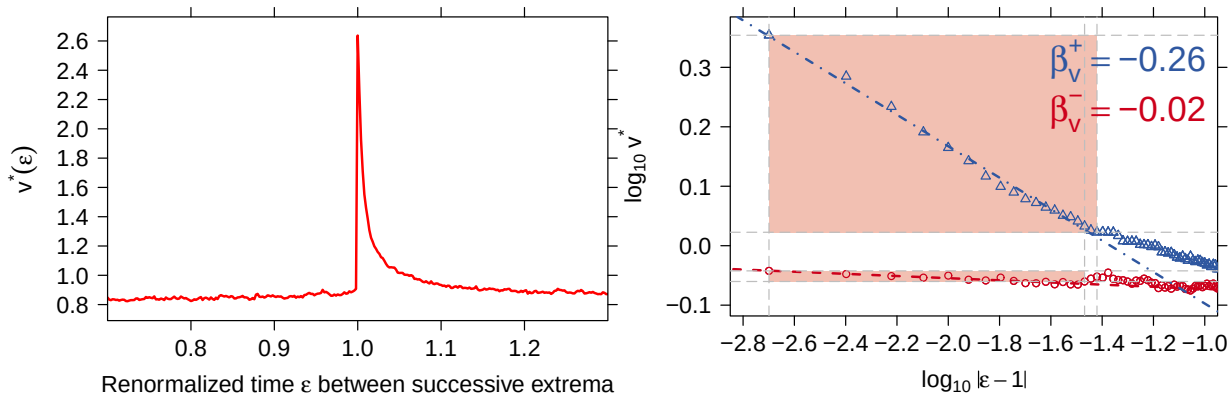

Fig. 4. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 5. Statistical test of power-law hypothesis for the BA volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.229	0	**1**	−0.017	0	**1**
0.006	−0.249	0.0032	**0.126**	−0.018	0	**0.956**
0.008	−0.267	0.0059	0.005	−0.018	0.0001	**0.987**
0.01	−0.273	0.0059	0.001	−0.014	0.0016	**0.351**
0.012	−0.276	0.0055	0.008	−0.016	0.0008	**0.81**
0.014	−0.282	0.0052	0.017	−0.017	0.0008	**0.764**
0.016	−0.286	0.0059	0.006	−0.015	0.0011	**0.552**
0.018	−0.286	0.0054	0.007	−0.015	0.0007	**0.862**
0.02	−0.285	0.0049	0.046	−0.017	0.0008	**0.712**
0.022	−0.283	0.0041	**0.288**	−0.018	0.0011	**0.407**
0.024	−0.28	0.0036	**0.569**	−0.018	0.0009	**0.59**
0.026	−0.277	0.0035	**0.647**	−0.018	0.001	**0.363**
0.028	−0.275	0.0034	**0.722**	−0.018	0.0008	**0.565**
0.03	−0.272	0.0034	**0.713**	−0.018	0.0009	**0.49**
0.032	−0.269	0.0033	**0.717**	−0.019	0.0008	**0.492**
0.034	−0.267	0.0035	**0.609**	−0.018	0.0007	**0.684**
0.036	−0.266	0.0037	**0.453**	−0.016	0.0014	0.062
0.038	−0.264	0.004	**0.261**	−0.014	0.0025	0
0.04	−0.262	0.0043	0.064	−0.012	0.003	0
0.042	−0.259	0.0049	0	−0.01	0.0041	0
0.044	−0.256	0.0055	0	−0.009	0.0042	0
0.046	−0.253	0.0058	0	−0.009	0.0042	0
0.048	−0.252	0.0062	0	−0.009	0.0041	0
0.05	−0.25	0.0067	0	−0.009	0.0039	0
0.052	−0.248	0.0073	0	−0.009	0.0036	0
0.054	−0.245	0.0078	0	−0.009	0.0036	0
0.056	−0.243	0.0082	0	−0.009	0.0035	0
0.058	−0.241	0.0085	0	−0.008	0.0035	0
0.06	−0.239	0.0088	0	−0.008	0.0034	0
0.062	−0.237	0.0091	0	−0.008	0.0033	0
0.064	−0.235	0.0094	0	−0.008	0.0031	0
0.066	−0.233	0.0096	0	−0.009	0.0029	0
0.068	−0.231	0.0097	0	−0.009	0.0028	0
0.07	−0.23	0.0098	0	−0.01	0.0026	0
0.072	−0.228	0.0099	0	−0.011	0.0025	0
0.074	−0.227	0.0101	0	−0.011	0.0024	0
0.076	−0.226	0.0103	0	−0.011	0.0023	0

Bank of America Corporation Common Stock (BAC). The BAC price time series contains 223,277,158 transactions.

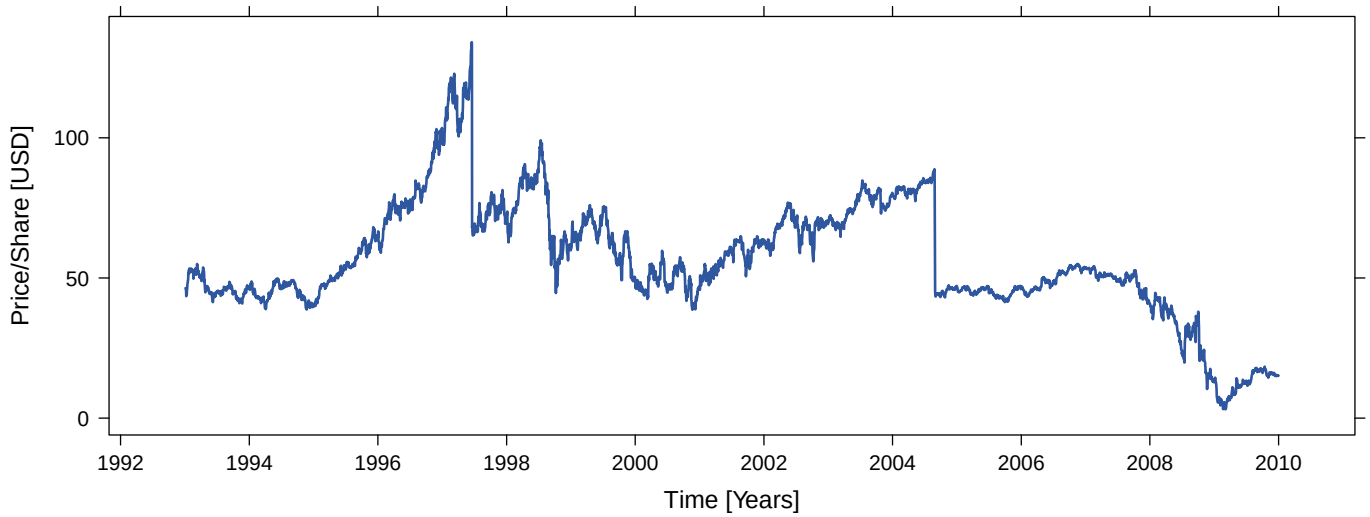

Fig. 5. Stock splits occurred on 28 February 1997 [split ratio 2:1] and 30 August 2004 [split ratio 2:1].

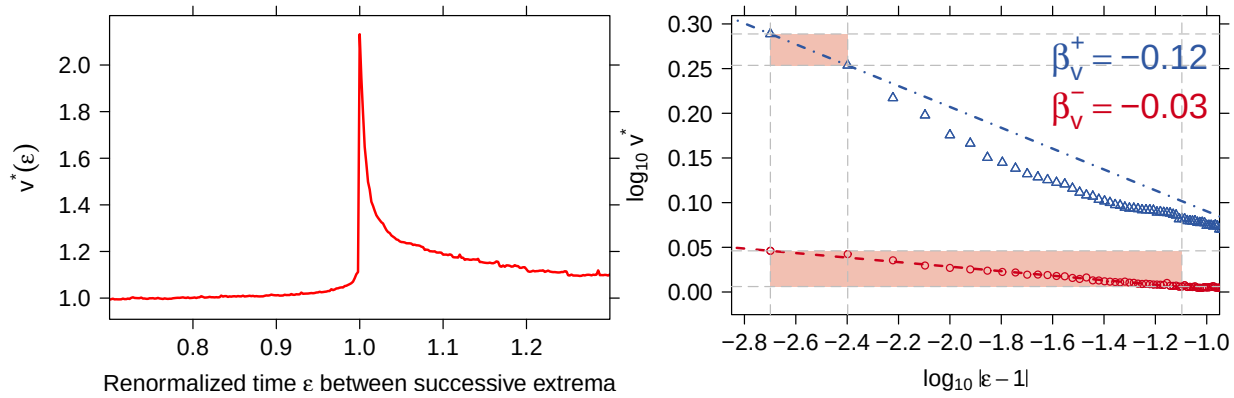

Fig. 6. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 6. Statistical test of power-law hypothesis for the BAC volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.116	0	**0.776**	−0.012	0	**0.743**
0.006	−0.146	0.0049	0	−0.021	0.0015	0.029
0.008	−0.152	0.0044	0	−0.026	0.0019	0.002
0.01	−0.161	0.0048	0	−0.028	0.0019	0.003
0.012	−0.163	0.0044	0	−0.028	0.0016	0.003
0.014	−0.166	0.0044	0	−0.028	0.0013	0.009
0.016	−0.166	0.0039	0	−0.028	0.0012	0.022
0.018	−0.165	0.0035	0	−0.028	0.001	0.036
0.02	−0.164	0.0031	0	−0.028	0.0009	0.052
0.022	−0.162	0.0028	0.003	−0.027	0.0008	0.068
0.024	−0.16	0.0026	0.014	−0.027	0.0008	**0.104**
0.026	−0.158	0.0024	0.071	−0.027	0.0007	**0.12**
0.028	−0.155	0.0023	0.076	−0.026	0.0007	**0.155**
0.03	−0.153	0.0027	0.001	−0.026	0.0006	**0.184**
0.032	−0.152	0.003	0	−0.026	0.0006	**0.235**
0.034	−0.15	0.0032	0	−0.026	0.0006	**0.252**
0.036	−0.149	0.0034	0	−0.026	0.0005	**0.31**
0.038	−0.148	0.0036	0	−0.026	0.0005	**0.341**
0.04	−0.146	0.0037	0	−0.026	0.0005	**0.386**
0.042	−0.145	0.0038	0	−0.026	0.0004	**0.458**
0.044	−0.144	0.0039	0	−0.026	0.0004	**0.514**
0.046	−0.142	0.004	0	−0.026	0.0004	**0.509**
0.048	−0.141	0.004	0	−0.026	0.0004	**0.547**
0.05	−0.14	0.0041	0	−0.026	0.0004	**0.555**
0.052	−0.139	0.0043	0	−0.026	0.0004	**0.559**
0.054	−0.137	0.0045	0	−0.026	0.0004	**0.6**
0.056	−0.136	0.0047	0	−0.026	0.0003	**0.619**
0.058	−0.135	0.0049	0	−0.026	0.0003	**0.584**
0.06	−0.133	0.0052	0	−0.026	0.0003	**0.626**
0.062	−0.132	0.0055	0	−0.026	0.0003	**0.645**
0.064	−0.131	0.0057	0	−0.026	0.0003	**0.662**
0.066	−0.129	0.006	0	−0.025	0.0003	**0.637**
0.068	−0.128	0.0062	0	−0.025	0.0003	**0.669**
0.07	−0.127	0.0065	0	−0.025	0.0003	**0.502**
0.072	−0.126	0.0067	0	−0.025	0.0003	**0.502**
0.074	−0.125	0.0069	0	−0.025	0.0004	**0.448**
0.076	−0.124	0.007	0	−0.025	0.0004	**0.337**

Caterpillar, Inc. Common Stock (CAT). The CAT price time series contains 43,498,630 transactions.

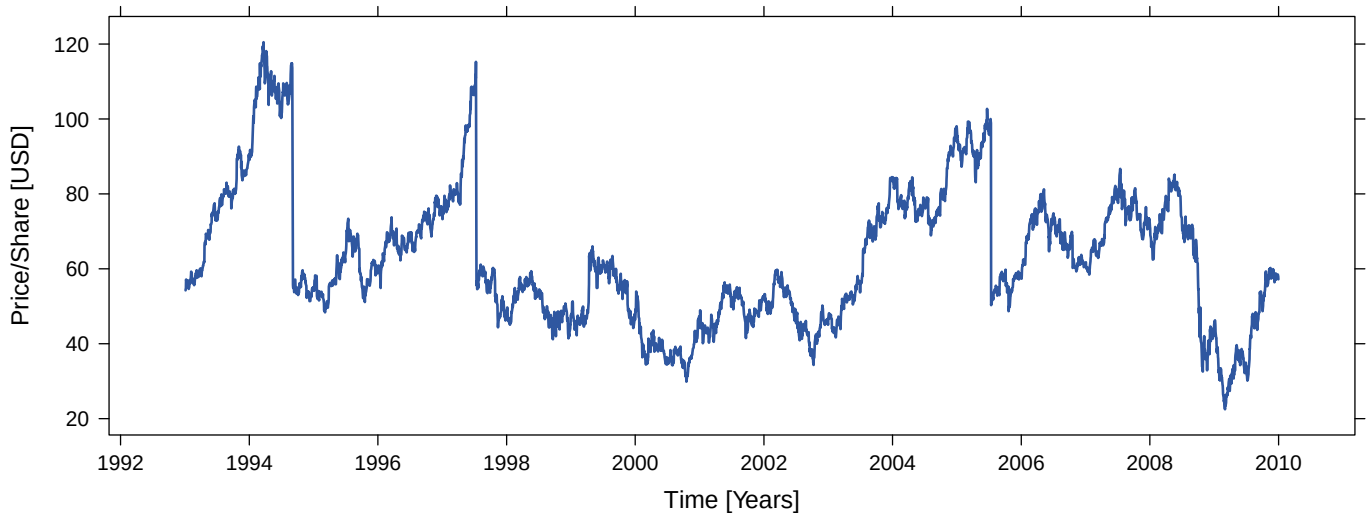

Fig. 7. Stock splits occurred on 6 September 1994 [split ratio 2:1], 14 July 1997 [split ratio 2:1], and 14 July 2005 [split ratio 2:1].

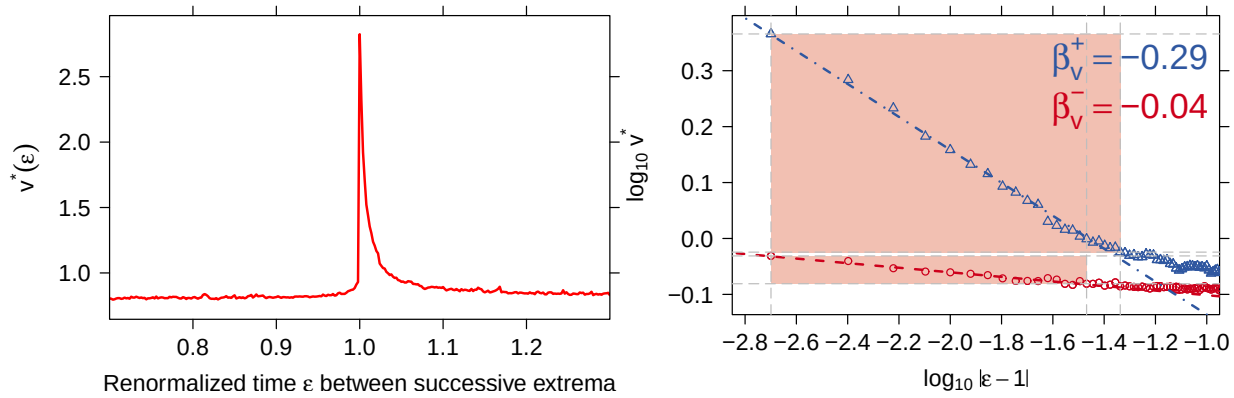

Fig. 8. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 7. Statistical test of power-law hypothesis for the CAT volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.272	0	**0.692**	−0.03	0	**1**
0.006	−0.277	0.0008	**0.717**	−0.044	0.0023	**0.13**
0.008	−0.298	0.0058	0	−0.047	0.002	**0.178**
0.01	−0.3	0.0052	0.009	−0.045	0.0015	**0.327**
0.012	−0.303	0.0048	0.052	−0.043	0.0012	**0.449**
0.014	−0.302	0.0042	**0.181**	−0.042	0.0011	**0.549**
0.016	−0.304	0.0039	**0.353**	−0.043	0.0009	**0.646**
0.018	−0.303	0.0035	**0.608**	−0.045	0.0012	**0.44**
0.02	−0.303	0.0032	**0.793**	−0.045	0.0011	**0.452**
0.022	−0.301	0.003	**0.918**	−0.045	0.0009	**0.561**
0.024	−0.305	0.0033	**0.866**	−0.042	0.0011	**0.443**
0.026	−0.307	0.0042	**0.467**	−0.041	0.0017	0.078
0.028	−0.308	0.0043	**0.393**	−0.041	0.0014	**0.186**
0.03	−0.307	0.0037	**0.807**	−0.042	0.0011	**0.364**
0.032	−0.307	0.0034	**0.924**	−0.041	0.0014	**0.114**
0.034	−0.306	0.003	**0.993**	−0.04	0.0014	**0.109**
0.036	−0.305	0.0027	**0.999**	−0.04	0.0014	0.095
0.038	−0.302	0.0022	**1**	−0.039	0.0015	0.049
0.04	−0.3	0.0022	**1**	−0.039	0.0014	0.071
0.042	−0.299	0.0023	**1**	−0.039	0.0014	0.049
0.044	−0.296	0.0032	**0.967**	−0.038	0.0016	0.016
0.046	−0.294	0.0039	**0.584**	−0.038	0.0016	0.017
0.048	−0.292	0.0045	0.057	−0.037	0.0016	0.014
0.05	−0.29	0.005	0.001	−0.037	0.0015	0.013
0.052	−0.288	0.0056	0	−0.037	0.0015	0.016
0.054	−0.286	0.0061	0	−0.037	0.0015	0.016
0.056	−0.283	0.0065	0	−0.037	0.0014	0.009
0.058	−0.28	0.0074	0	−0.037	0.0014	0.016
0.06	−0.277	0.0082	0	−0.037	0.0014	0.025
0.062	−0.274	0.0089	0	−0.036	0.0014	0.023
0.064	−0.272	0.0094	0	−0.036	0.0014	0.007
0.066	−0.269	0.01	0	−0.036	0.0014	0.015
0.068	−0.267	0.0106	0	−0.035	0.0014	0.003
0.07	−0.264	0.0112	0	−0.035	0.0014	0.004
0.072	−0.262	0.0116	0	−0.035	0.0015	0.002
0.074	−0.26	0.0119	0	−0.034	0.0017	0
0.076	−0.259	0.0122	0	−0.034	0.0018	0

Cisco Systems, Inc. (CSCO). The CSCO price time series contains 232,622,629 transactions.

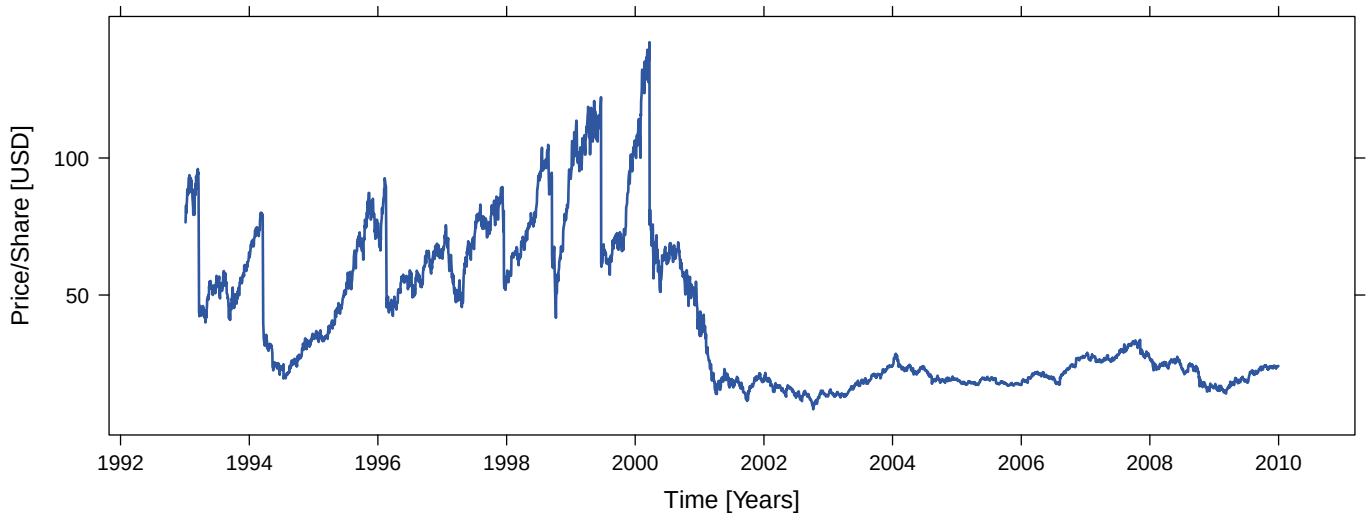

Fig. 9. Stock splits occurred on 22 Mar 1993 [split ratio 2:1], 21 March 1994 [split ratio 2:1], 20 February 1996 [split ratio 2:1], 17 December 1997 [split ratio 3:2], 16 September 1998 [split ratio 3:2], 22 June 1999 [split ratio 2:1], and 23 March 2000 [split ratio 2:1].

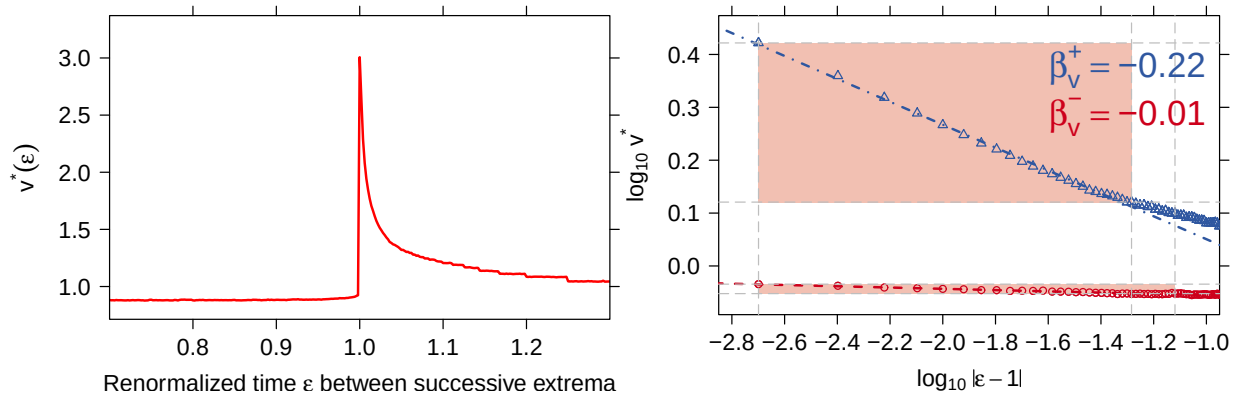

Fig. 10. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 8. Statistical test of power-law hypothesis for the CSCO volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.207	0	**1**	−0.01	0	**1**
0.006	−0.215	0.0014	**0.249**	−0.013	0.0004	**0.496**
0.008	−0.22	0.0017	**0.33**	−0.013	0.0003	**0.709**
0.01	−0.222	0.0018	**0.566**	−0.013	0.0002	**0.866**
0.012	−0.224	0.0017	**0.836**	−0.012	0.0002	**0.932**
0.014	−0.225	0.0018	**0.941**	−0.013	0.0002	**0.968**
0.016	−0.225	0.0015	**0.998**	−0.013	0.0001	**0.985**
0.018	−0.226	0.0014	**1**	−0.013	0.0001	**0.978**
0.02	−0.226	0.0013	**1**	−0.013	0.0001	**0.997**
0.022	−0.226	0.0013	**1**	−0.012	0.0001	**0.995**
0.024	−0.226	0.0012	**1**	−0.012	0.0003	**0.728**
0.026	−0.226	0.0011	**1**	−0.012	0.0002	**0.804**
0.028	−0.225	0.001	**1**	−0.012	0.0002	**0.778**
0.03	−0.225	0.0009	**1**	−0.012	0.0002	**0.75**
0.032	−0.224	0.0009	**1**	−0.012	0.0002	**0.858**
0.034	−0.224	0.0009	**1**	−0.012	0.0002	**0.816**
0.036	−0.223	0.0009	**1**	−0.012	0.0002	**0.863**
0.038	−0.223	0.0009	**1**	−0.012	0.0002	**0.892**
0.04	−0.222	0.0009	**1**	−0.012	0.0001	**0.916**
0.042	−0.221	0.0009	**1**	−0.012	0.0001	**0.944**
0.044	−0.22	0.0013	**1**	−0.012	0.0001	**0.949**
0.046	−0.219	0.0018	**1**	−0.012	0.0002	**0.823**
0.048	−0.218	0.0021	**1**	−0.012	0.0002	**0.782**
0.05	−0.217	0.0023	**0.987**	−0.012	0.0002	**0.83**
0.052	−0.216	0.0027	**0.508**	−0.012	0.0002	**0.745**
0.054	−0.215	0.003	0.025	−0.012	0.0002	**0.775**
0.056	−0.214	0.0032	0	−0.012	0.0002	**0.83**
0.058	−0.213	0.0035	0	−0.012	0.0002	**0.832**
0.06	−0.212	0.0037	0	−0.012	0.0001	**0.888**
0.062	−0.21	0.004	0	−0.012	0.0001	**0.888**
0.064	−0.21	0.0042	0	−0.012	0.0001	**0.949**
0.066	−0.208	0.0044	0	−0.012	0.0001	**0.957**
0.068	−0.208	0.0045	0	−0.012	0.0001	**0.964**
0.07	−0.206	0.0048	0	−0.012	0.0001	**0.959**
0.072	−0.205	0.005	0	−0.012	0.0002	**0.76**
0.074	−0.205	0.0052	0	−0.012	0.0003	**0.29**
0.076	−0.204	0.0054	0	−0.012	0.0003	**0.145**

Chevron Corporation Common Stock (CVX). The CVX price time series contains 60,434,392 transactions.

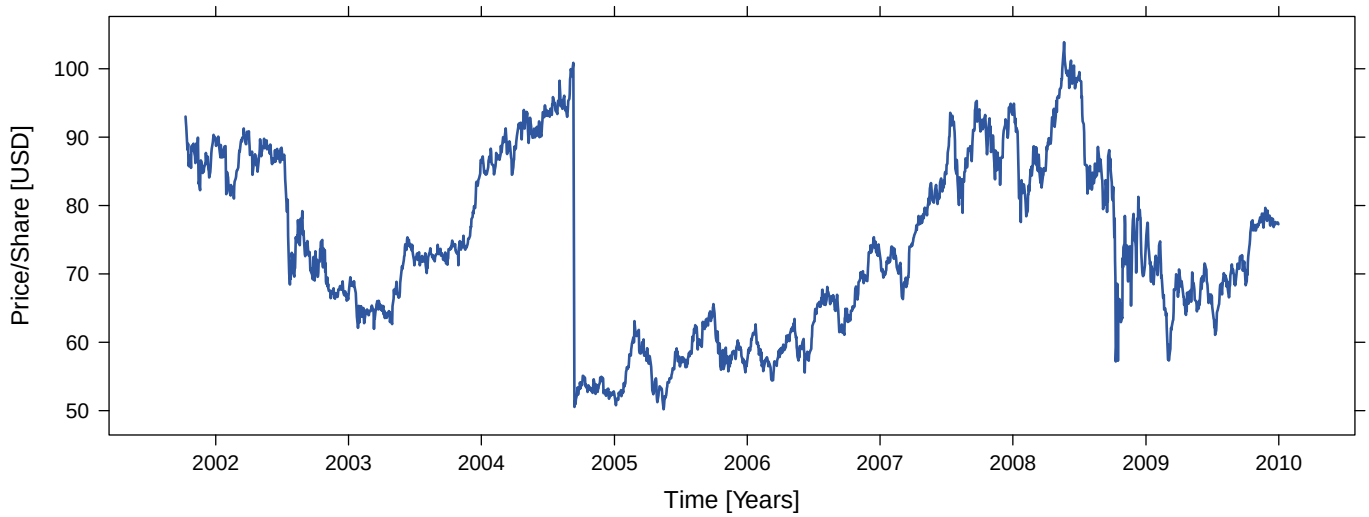

Fig. 11. Stock splits occurred on 13 June 1994 [split ratio 2:1] and 13 September 2004 [split ratio 2:1].

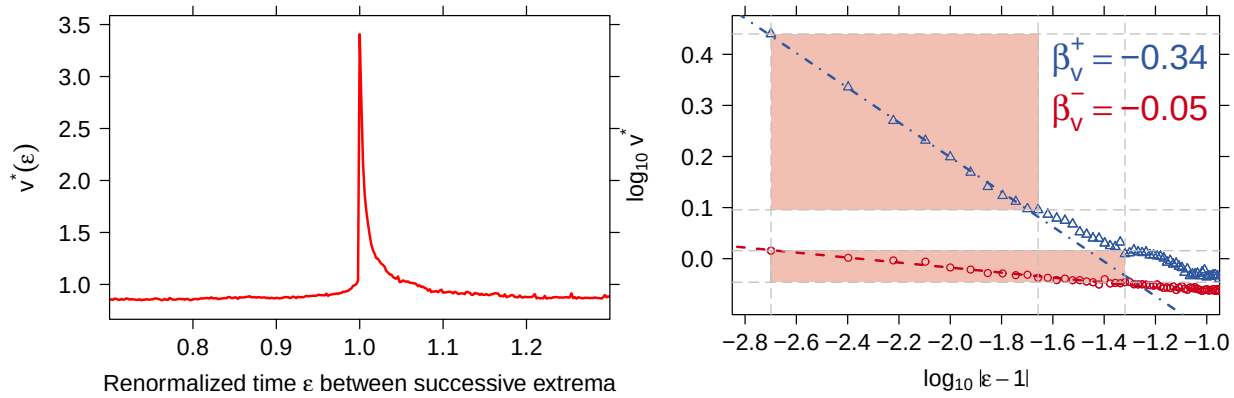

Fig. 12. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 9. Statistical test of power-law hypothesis for the CVX volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.346	0	**1**	−0.046	0	**1**
0.006	−0.354	0.0014	**0.553**	−0.04	0.0009	**0.494**
0.008	−0.349	0.0009	**0.94**	−0.036	0.0014	**0.309**
0.01	−0.346	0.0013	**0.969**	−0.042	0.0015	**0.232**
0.012	−0.346	0.001	**0.997**	−0.045	0.002	0.061
0.014	−0.35	0.001	**0.999**	−0.049	0.0024	0.011
0.016	−0.35	0.0011	**1**	−0.05	0.0022	0.022
0.018	−0.348	0.0009	**1**	−0.051	0.0022	0.011
0.02	−0.345	0.0018	**1**	−0.05	0.0018	0.052
0.022	−0.34	0.0035	**0.932**	−0.051	0.0018	0.044
0.024	−0.334	0.0053	0.038	−0.051	0.0017	0.078
0.026	−0.329	0.0068	0	−0.052	0.0016	0.059
0.028	−0.324	0.0081	0	−0.051	0.0015	**0.122**
0.03	−0.32	0.009	0	−0.051	0.0014	**0.133**
0.032	−0.317	0.0091	0	−0.051	0.0013	**0.183**
0.034	−0.315	0.0092	0	−0.051	0.0012	**0.194**
0.036	−0.312	0.0093	0	−0.051	0.0011	**0.245**
0.038	−0.31	0.0095	0	−0.051	0.0011	**0.298**
0.04	−0.308	0.0095	0	−0.05	0.001	**0.283**
0.042	−0.306	0.0095	0	−0.05	0.001	**0.285**
0.044	−0.303	0.0096	0	−0.05	0.001	**0.332**
0.046	−0.299	0.0099	0	−0.049	0.0009	**0.325**
0.048	−0.298	0.0098	0	−0.048	0.0012	**0.118**
0.05	−0.296	0.0097	0	−0.048	0.0014	0.018
0.052	−0.293	0.0101	0	−0.048	0.0015	0.008
0.054	−0.291	0.0106	0	−0.047	0.0015	0.006
0.056	−0.288	0.011	0	−0.047	0.0016	0.002
0.058	−0.285	0.0117	0	−0.047	0.0016	0.002
0.06	−0.283	0.0122	0	−0.046	0.0016	0.001
0.062	−0.28	0.0127	0	−0.046	0.0016	0
0.064	−0.278	0.0131	0	−0.046	0.0017	0
0.066	−0.275	0.0135	0	−0.046	0.0016	0.001
0.068	−0.273	0.014	0	−0.046	0.0015	0
0.07	−0.271	0.0142	0	−0.046	0.0015	0.002
0.072	−0.269	0.0145	0	−0.046	0.0015	0
0.074	−0.268	0.0146	0	−0.046	0.0015	0
0.076	−0.266	0.0148	0	−0.046	0.0014	0.001

E.I. du Pont de Nemours and Common Stock (DD). The DD price time series contains 36,254,128 transactions.

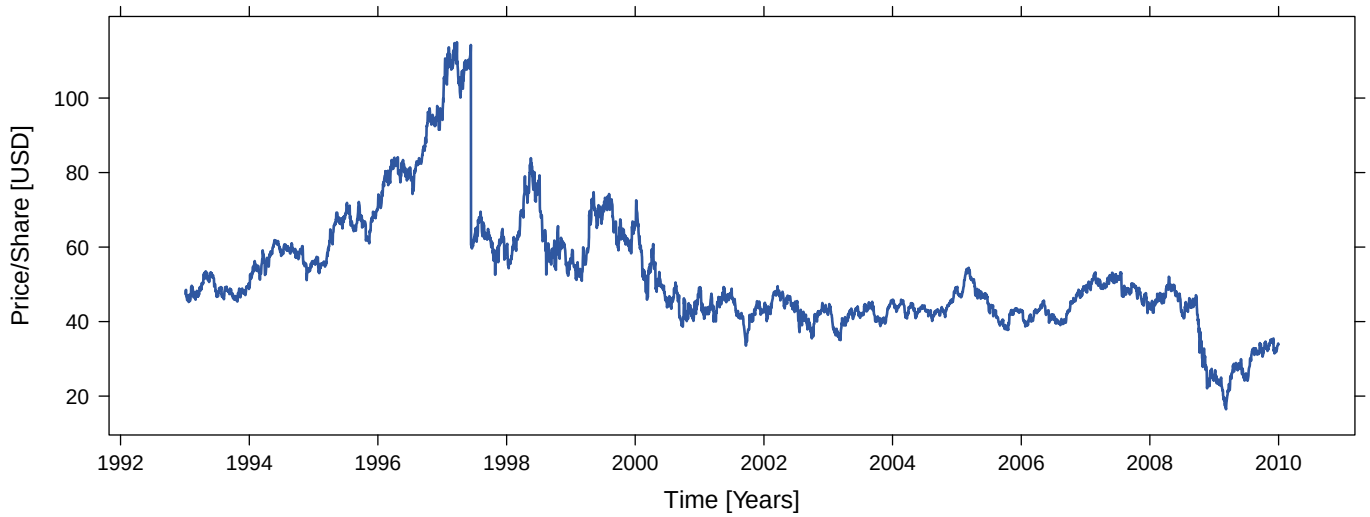

Fig. 13. A stock split occurred on 13 June 1997 [split ratio 2:1].

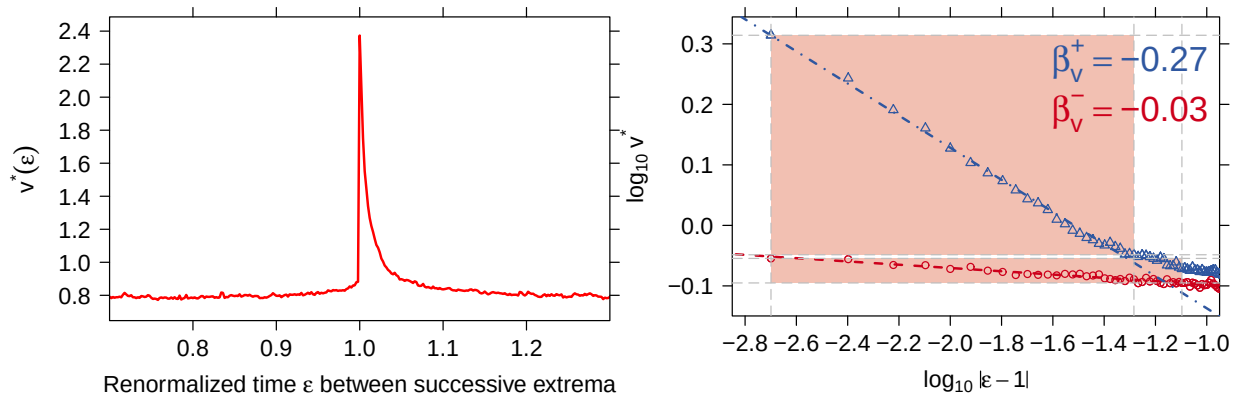

Fig. 14. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 10. Statistical test of power-law hypothesis for the DD volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.236	0	**1**	−0.004	0	**1**
0.006	−0.256	0.0033	**0.109**	−0.02	0.0027	**0.107**
0.008	−0.257	0.0027	**0.317**	−0.02	0.0021	**0.225**
0.01	−0.265	0.0038	**0.128**	−0.024	0.002	**0.203**
0.012	−0.271	0.0046	0.054	−0.022	0.0015	**0.358**
0.014	−0.273	0.0044	0.095	−0.024	0.0013	**0.413**
0.016	−0.272	0.0039	**0.261**	−0.025	0.0016	**0.26**
0.018	−0.273	0.0036	**0.403**	−0.027	0.002	0.061
0.02	−0.274	0.0033	**0.596**	−0.028	0.002	0.052
0.022	−0.273	0.0031	**0.762**	−0.028	0.0019	0.05
0.024	−0.273	0.0029	**0.876**	−0.028	0.0017	0.08
0.026	−0.274	0.0027	**0.943**	−0.028	0.0016	**0.111**
0.028	−0.275	0.0025	**0.977**	−0.027	0.0014	**0.162**
0.03	−0.276	0.0029	**0.933**	−0.026	0.0012	**0.188**
0.032	−0.277	0.0028	**0.945**	−0.026	0.0011	**0.264**
0.034	−0.277	0.0028	**0.97**	−0.026	0.0011	**0.262**
0.036	−0.276	0.0025	**0.993**	−0.025	0.001	**0.32**
0.038	−0.276	0.0023	**1**	−0.024	0.001	**0.327**
0.04	−0.275	0.002	**1**	−0.025	0.0009	**0.359**
0.042	−0.273	0.002	**1**	−0.025	0.0008	**0.398**
0.044	−0.271	0.0021	**0.997**	−0.026	0.0009	**0.325**
0.046	−0.269	0.0022	**0.999**	−0.026	0.0009	**0.332**
0.048	−0.268	0.0025	**0.997**	−0.026	0.0011	**0.14**
0.05	−0.267	0.003	**0.893**	−0.026	0.0009	**0.304**
0.052	−0.265	0.0036	**0.403**	−0.026	0.0008	**0.325**
0.054	−0.263	0.0041	0.068	−0.026	0.001	**0.127**
0.056	−0.261	0.0047	0.001	−0.027	0.0011	0.094
0.058	−0.259	0.0053	0	−0.026	0.0009	**0.2**
0.06	−0.257	0.0058	0	−0.026	0.0009	**0.194**
0.062	−0.255	0.0061	0	−0.026	0.0008	**0.263**
0.064	−0.253	0.0065	0	−0.026	0.0008	**0.293**
0.066	−0.251	0.0072	0	−0.026	0.0008	**0.251**
0.068	−0.248	0.0078	0	−0.027	0.0009	**0.211**
0.07	−0.247	0.0081	0	−0.026	0.0008	**0.268**
0.072	−0.245	0.0084	0	−0.027	0.0008	**0.28**
0.074	−0.244	0.0087	0	−0.027	0.0008	**0.294**
0.076	−0.242	0.0093	0	−0.027	0.0007	**0.284**

Walt Disney Company (The) Common Stock (DIS). The DIS price time series contains 52,644,832 transactions.

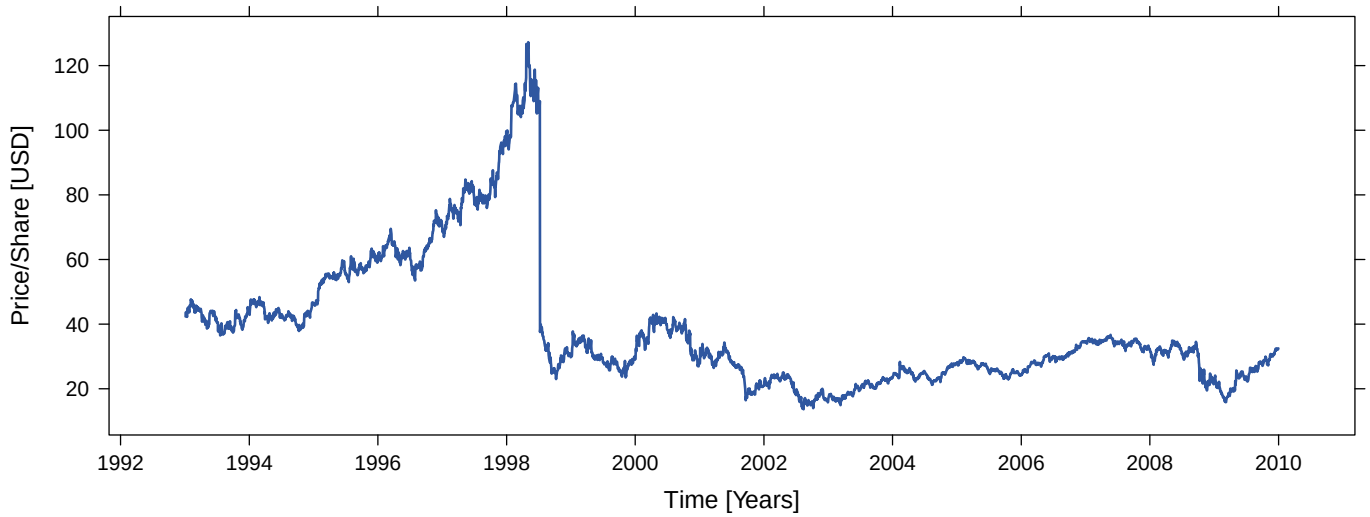

Fig. 15. A stock split occurred on 10 July 1998 [split ratio 3:1].

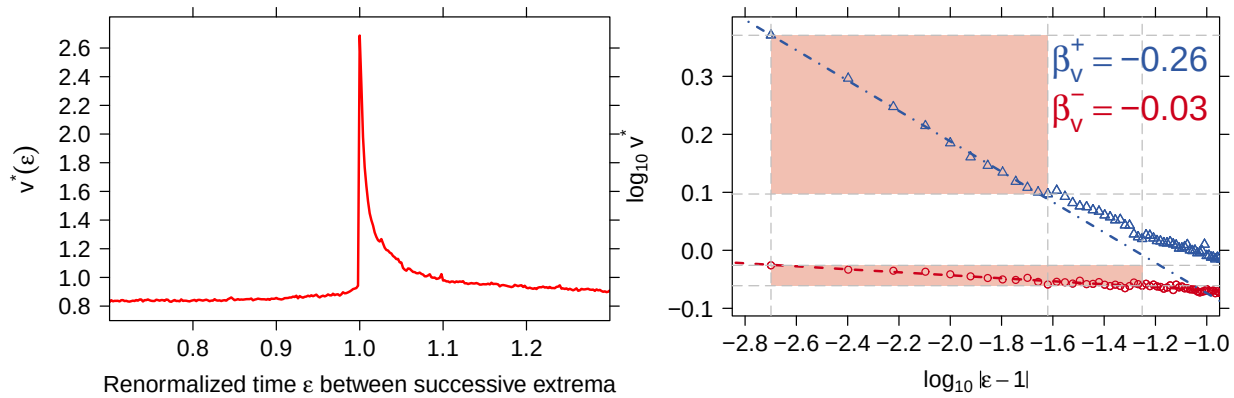

Fig. 16. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 11. Statistical test of power-law hypothesis for the DIS volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.247	0	**1**	−0.024	0	**1**
0.006	−0.257	0.0016	**0.383**	−0.02	0.0007	**0.589**
0.008	−0.259	0.0015	**0.643**	−0.018	0.0007	**0.721**
0.01	−0.264	0.0023	**0.516**	−0.02	0.0005	**0.889**
0.012	−0.269	0.0031	**0.362**	−0.022	0.0008	**0.643**
0.014	−0.269	0.0028	**0.637**	−0.024	0.0012	**0.299**
0.016	−0.267	0.0022	**0.888**	−0.025	0.0014	**0.152**
0.018	−0.267	0.002	**0.968**	−0.026	0.0014	**0.161**
0.02	−0.266	0.0018	**0.994**	−0.025	0.0011	**0.288**
0.022	−0.265	0.0016	**0.999**	−0.026	0.0011	**0.268**
0.024	−0.261	0.0015	**1**	−0.028	0.0016	0.038
0.026	−0.255	0.0041	0.08	−0.028	0.0014	0.091
0.028	−0.251	0.0056	0	−0.027	0.0013	**0.103**
0.03	−0.248	0.0062	0	−0.028	0.0012	**0.105**
0.032	−0.246	0.0066	0	−0.027	0.0009	**0.352**
0.034	−0.243	0.0072	0	−0.027	0.0009	**0.33**
0.036	−0.241	0.0076	0	−0.027	0.0008	**0.37**
0.038	−0.238	0.0079	0	−0.026	0.0007	**0.447**
0.04	−0.236	0.0079	0	−0.026	0.0007	**0.468**
0.042	−0.234	0.008	0	−0.026	0.0007	**0.508**
0.044	−0.233	0.0079	0	−0.026	0.0006	**0.512**
0.046	−0.231	0.0079	0	−0.026	0.0006	**0.562**
0.048	−0.23	0.0077	0	−0.027	0.0006	**0.633**
0.05	−0.228	0.0076	0	−0.027	0.0005	**0.605**
0.052	−0.228	0.0073	0	−0.026	0.0005	**0.572**
0.054	−0.229	0.0071	0	−0.025	0.0007	**0.374**
0.056	−0.229	0.0069	0	−0.025	0.0007	**0.267**
0.058	−0.228	0.0067	0	−0.025	0.001	0.054
0.06	−0.227	0.0065	0	−0.025	0.001	0.043
0.062	−0.226	0.0064	0	−0.024	0.0012	0.012
0.064	−0.225	0.0063	0	−0.024	0.0012	0.007
0.066	−0.225	0.0062	0	−0.024	0.0012	0.005
0.068	−0.224	0.0061	0	−0.024	0.001	0.025
0.07	−0.223	0.006	0	−0.024	0.001	0.028
0.072	−0.222	0.0059	0	−0.024	0.0011	0.015
0.074	−0.221	0.0058	0	−0.024	0.001	0.024
0.076	−0.22	0.0057	0	−0.024	0.0011	0.011

General Electric Company Common Stock (GE). The GE price time series contains 160,362,970 transactions.

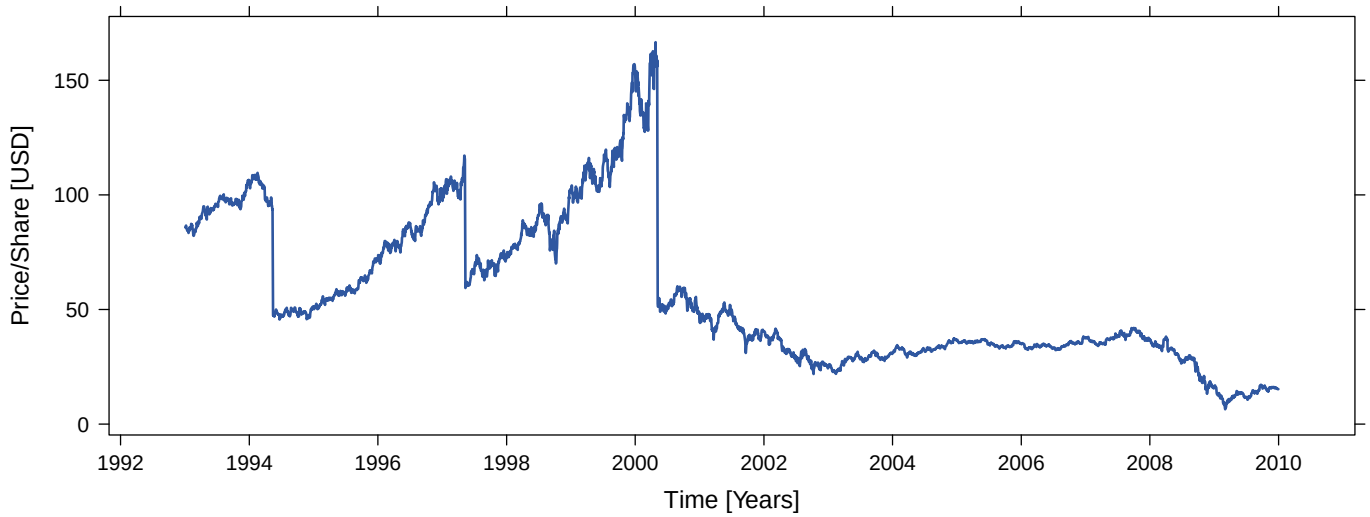

Fig. 17. Stock splits occurred on 16 May 1994 [split ratio 2:1], 12 May 1997 [split ratio 2:1], and 8 May 2000 [split ratio 3:1].

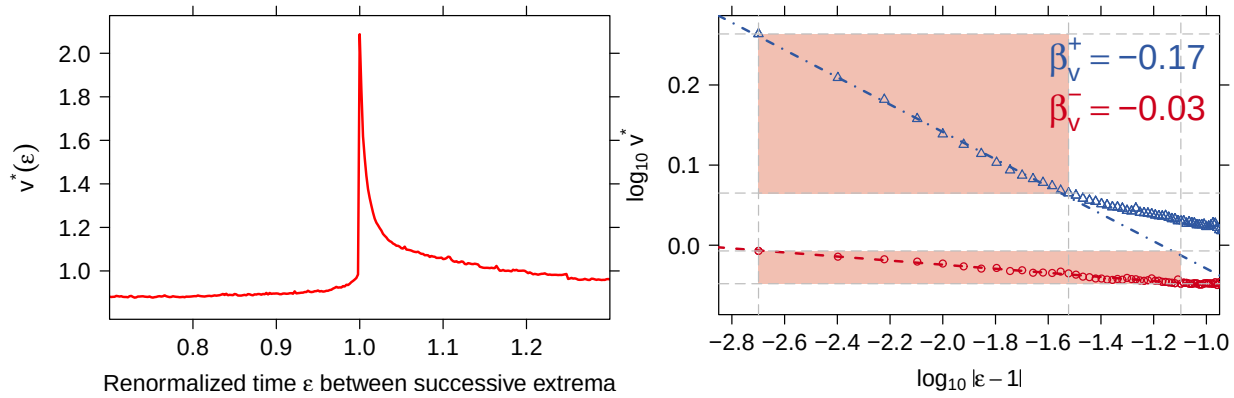

Fig. 18. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 12. Statistical test of power-law hypothesis for the GE volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.181	0	**1**	−0.023	0	**0.769**
0.006	−0.172	0.0014	**0.189**	−0.022	0.0003	**0.731**
0.008	−0.174	0.001	**0.681**	−0.021	0.0002	**0.919**
0.01	−0.176	0.0006	**0.943**	−0.022	0.0001	**0.97**
0.012	−0.177	0.0006	**0.995**	−0.023	0.0005	**0.61**
0.014	−0.177	0.0005	**1**	−0.024	0.0008	**0.209**
0.016	−0.177	0.0005	**1**	−0.024	0.0007	**0.351**
0.018	−0.177	0.0004	**1**	−0.025	0.0007	**0.279**
0.02	−0.177	0.0004	**1**	−0.025	0.0006	**0.372**
0.022	−0.176	0.0006	**1**	−0.025	0.0006	**0.326**
0.024	−0.174	0.0012	**0.998**	−0.025	0.0006	**0.42**
0.026	−0.173	0.0018	**0.928**	−0.025	0.0005	**0.442**
0.028	−0.171	0.002	**0.705**	−0.025	0.0005	**0.571**
0.03	−0.17	0.0023	**0.313**	−0.024	0.0004	**0.57**
0.032	−0.169	0.0027	0.031	−0.024	0.0004	**0.644**
0.034	−0.167	0.0029	0.009	−0.025	0.0004	**0.695**
0.036	−0.166	0.0031	0.001	−0.025	0.0005	**0.513**
0.038	−0.164	0.0033	0	−0.026	0.0007	**0.173**
0.04	−0.163	0.0036	0	−0.026	0.0008	0.087
0.042	−0.162	0.0039	0	−0.026	0.0009	0.031
0.044	−0.16	0.0042	0	−0.026	0.0009	0.01
0.046	−0.159	0.0044	0	−0.026	0.0009	0.014
0.048	−0.157	0.0048	0	−0.027	0.0009	0.012
0.05	−0.156	0.005	0	−0.026	0.0007	0.039
0.052	−0.154	0.0053	0	−0.026	0.0007	0.077
0.054	−0.153	0.0057	0	−0.026	0.0006	**0.108**
0.056	−0.151	0.0059	0	−0.026	0.0006	**0.141**
0.058	−0.15	0.0062	0	−0.026	0.0006	**0.141**
0.06	−0.148	0.0064	0	−0.026	0.0005	**0.221**
0.062	−0.147	0.0066	0	−0.025	0.0005	**0.317**
0.064	−0.146	0.0069	0	−0.025	0.0004	**0.37**
0.066	−0.144	0.0071	0	−0.025	0.0004	**0.399**
0.068	−0.143	0.0072	0	−0.025	0.0004	**0.409**
0.07	−0.142	0.0074	0	−0.025	0.0004	**0.453**
0.072	−0.141	0.0075	0	−0.025	0.0004	**0.449**
0.074	−0.14	0.0077	0	−0.025	0.0004	**0.464**
0.076	−0.138	0.0078	0	−0.025	0.0004	**0.516**

Home Depot, Inc. (The) Common Stock (HD). The HD price time series contains 72,368,643 transactions.

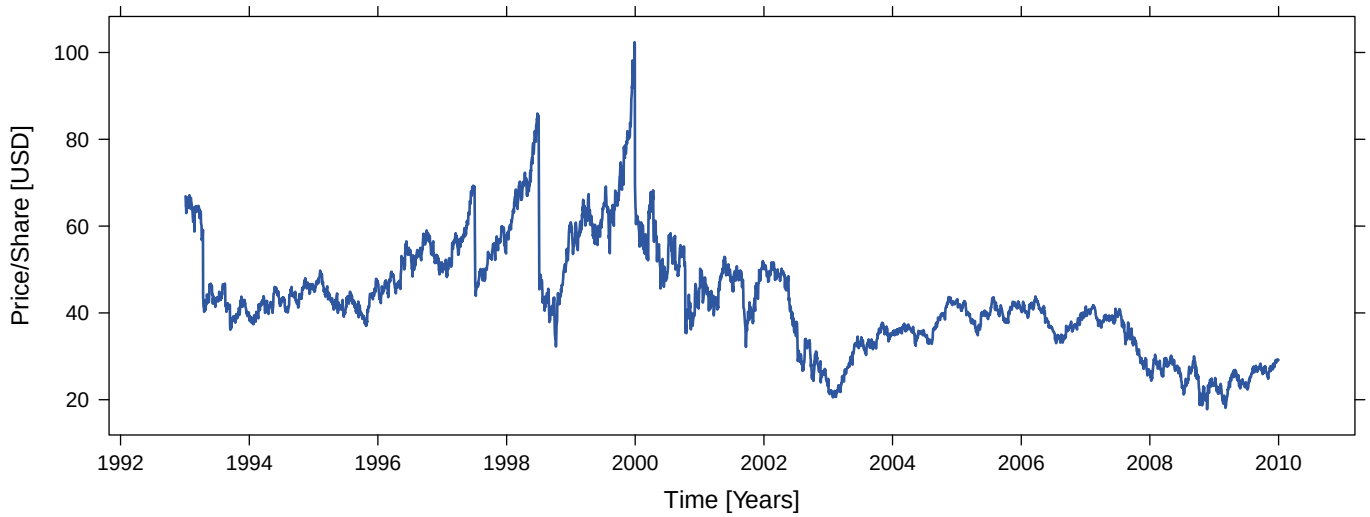

Fig. 19. Stock splits occurred on 14 April 1993 [split ratio 4:3], 7 July 1997 [split ratio 3:2], 6 July 1998 [split ratio 2:1], and 31 December 1999 [split ratio 3:2].

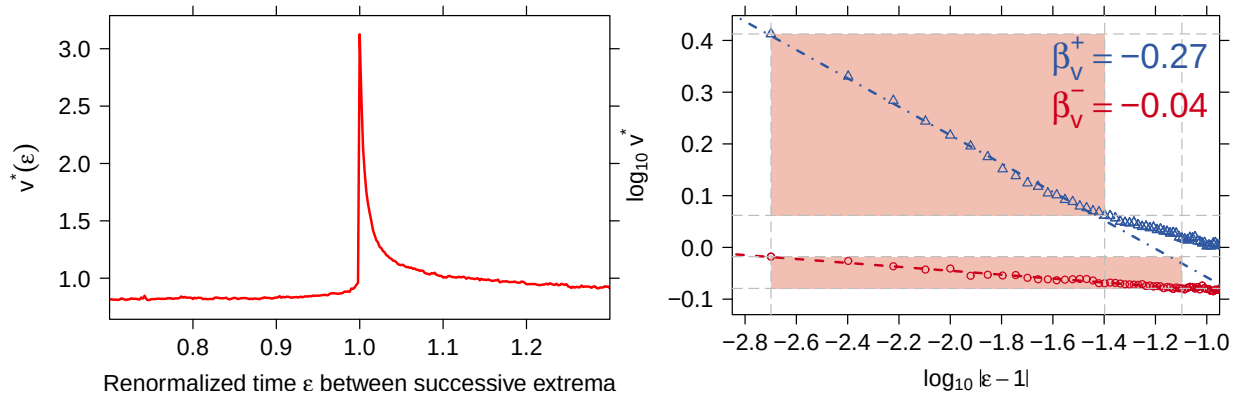

Fig. 20. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 13. Statistical test of power-law hypothesis for the HD volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.272	0	**1**	−0.027	0	**0.741**
0.006	−0.27	0.0003	**0.835**	−0.037	0.0017	**0.183**
0.008	−0.277	0.0019	**0.543**	−0.041	0.0016	**0.183**
0.01	−0.28	0.002	**0.74**	−0.037	0.0011	**0.383**
0.012	−0.28	0.0017	**0.919**	−0.043	0.0027	0.001
0.014	−0.281	0.0016	**0.986**	−0.043	0.0024	0.004
0.016	−0.286	0.0026	**0.846**	−0.043	0.002	0.021
0.018	−0.288	0.0031	**0.716**	−0.041	0.0015	0.084
0.02	−0.289	0.0033	**0.702**	−0.041	0.0014	**0.116**
0.022	−0.288	0.0029	**0.924**	−0.042	0.0013	**0.147**
0.024	−0.289	0.0028	**0.978**	−0.042	0.0012	**0.167**
0.026	−0.287	0.0023	**1**	−0.042	0.0011	**0.221**
0.028	−0.286	0.002	**1**	−0.041	0.001	**0.281**
0.03	−0.283	0.0017	**1**	−0.04	0.001	**0.3**
0.032	−0.282	0.0016	**1**	−0.039	0.001	**0.217**
0.034	−0.28	0.0022	**1**	−0.038	0.0014	0.036
0.036	−0.278	0.0026	**0.999**	−0.038	0.0015	0.01
0.038	−0.276	0.0033	**0.846**	−0.038	0.0013	0.04
0.04	−0.274	0.0037	**0.398**	−0.038	0.0012	0.077
0.042	−0.272	0.0042	0.031	−0.038	0.0012	0.063
0.044	−0.27	0.0048	0.001	−0.038	0.0012	0.05
0.046	−0.268	0.0051	0	−0.038	0.0011	0.042
0.048	−0.266	0.0054	0	−0.038	0.0011	0.071
0.05	−0.264	0.0058	0	−0.038	0.001	0.078
0.052	−0.262	0.0064	0	−0.038	0.001	0.069
0.054	−0.26	0.0068	0	−0.038	0.001	0.092
0.056	−0.258	0.0071	0	−0.037	0.001	0.078
0.058	−0.256	0.0075	0	−0.037	0.001	0.086
0.06	−0.254	0.0079	0	−0.037	0.0009	0.096
0.062	−0.252	0.0083	0	−0.037	0.0009	**0.126**
0.064	−0.25	0.0086	0	−0.037	0.0009	**0.132**
0.066	−0.248	0.0091	0	−0.037	0.0008	**0.129**
0.068	−0.246	0.0095	0	−0.037	0.0008	**0.144**
0.07	−0.244	0.0098	0	−0.037	0.0008	**0.18**
0.072	−0.242	0.0101	0	−0.037	0.0008	**0.203**
0.074	−0.241	0.0104	0	−0.037	0.0007	**0.203**
0.076	−0.239	0.0106	0	−0.037	0.0007	**0.226**

Hewlett-Packard Company Common Stock (HPQ). The HPQ price time series contains 62,996,894 transactions.

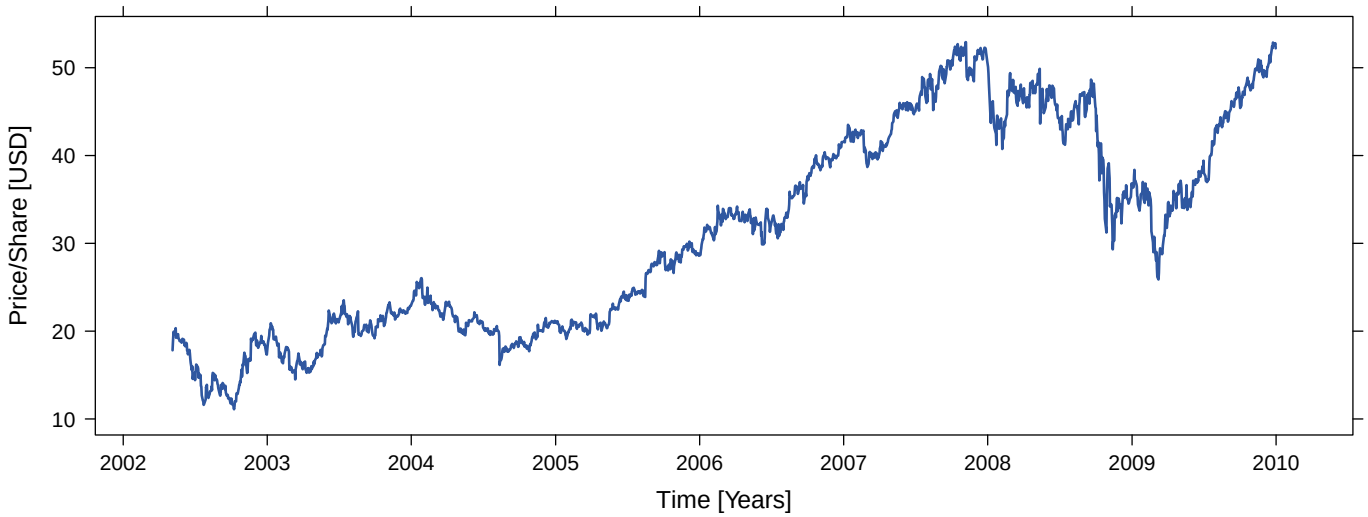

Fig. 21. Stock splits occurred on 17 April 1995 [split ratio 2:1], 16 July 1996 [split ratio 2:1], and 30 October 2000 [split ratio 2:1].

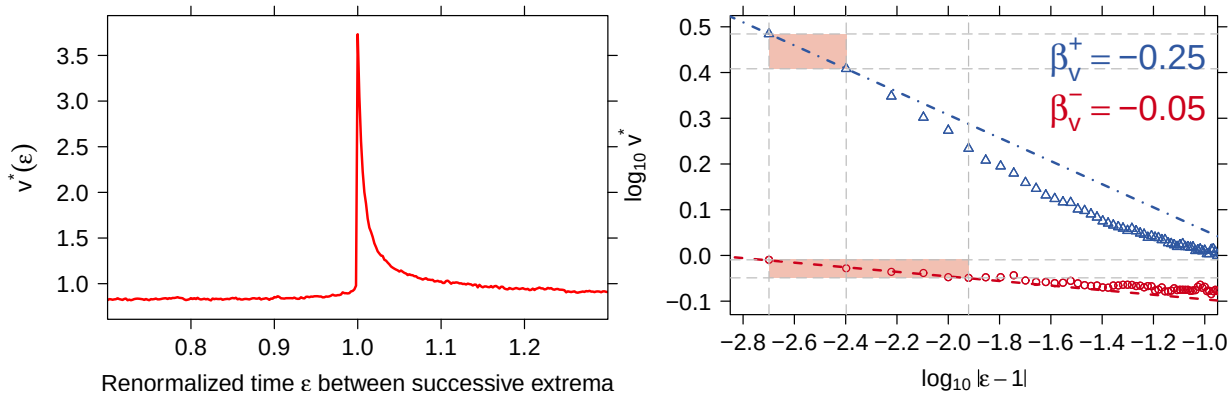

Fig. 22. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 14. Statistical test of power-law hypothesis for the HPQ volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.252	0	**1**	−0.061	0	**0.72**
0.006	−0.282	0.0048	0.006	−0.055	0.0009	**0.473**
0.008	−0.301	0.0067	0	−0.049	0.0021	0.09
0.01	−0.306	0.0065	0	−0.051	0.0013	**0.341**
0.012	−0.319	0.0083	0	−0.05	0.0012	**0.369**
0.014	−0.329	0.01	0	−0.046	0.0019	0.064
0.016	−0.331	0.0095	0	−0.043	0.0028	0
0.018	−0.331	0.0088	0	−0.038	0.0039	0
0.02	−0.334	0.0084	0	−0.039	0.0033	0
0.022	−0.335	0.008	0	−0.04	0.0029	0
0.024	−0.337	0.0076	0	−0.04	0.0026	0
0.026	−0.337	0.0071	0	−0.04	0.0024	0
0.028	−0.336	0.0068	0	−0.04	0.0022	0
0.03	−0.333	0.0064	0	−0.039	0.0021	0
0.032	−0.332	0.0061	0.001	−0.039	0.002	0.002
0.034	−0.33	0.0059	0	−0.039	0.0019	0.002
0.036	−0.329	0.0057	0.001	−0.04	0.0018	0.002
0.038	−0.327	0.0056	0.002	−0.04	0.0017	0.007
0.04	−0.326	0.0054	0.003	−0.04	0.0016	0.008
0.042	−0.325	0.0053	0.009	−0.041	0.0016	0.008
0.044	−0.323	0.0052	0.01	−0.04	0.0015	0.011
0.046	−0.322	0.0052	0.013	−0.04	0.0014	0.018
0.048	−0.32	0.0051	0.006	−0.039	0.0013	0.02
0.05	−0.319	0.0051	0.004	−0.038	0.0017	0
0.052	−0.316	0.0052	0	−0.038	0.0019	0
0.054	−0.314	0.0052	0.001	−0.037	0.002	0
0.056	−0.312	0.0053	0.001	−0.037	0.0021	0
0.058	−0.31	0.0053	0	−0.037	0.0021	0
0.06	−0.309	0.0053	0	−0.036	0.0022	0
0.062	−0.306	0.0055	0	−0.036	0.0022	0
0.064	−0.304	0.006	0	−0.036	0.002	0
0.066	−0.302	0.0065	0	−0.037	0.0019	0
0.068	−0.301	0.007	0	−0.036	0.0019	0
0.07	−0.299	0.0075	0	−0.037	0.0018	0
0.072	−0.297	0.0079	0	−0.037	0.0016	0
0.074	−0.296	0.0081	0	−0.037	0.0016	0
0.076	−0.294	0.0083	0	−0.037	0.0016	0

International Business Machines (IBM). The IBM price time series contains 49,386,841 transactions.

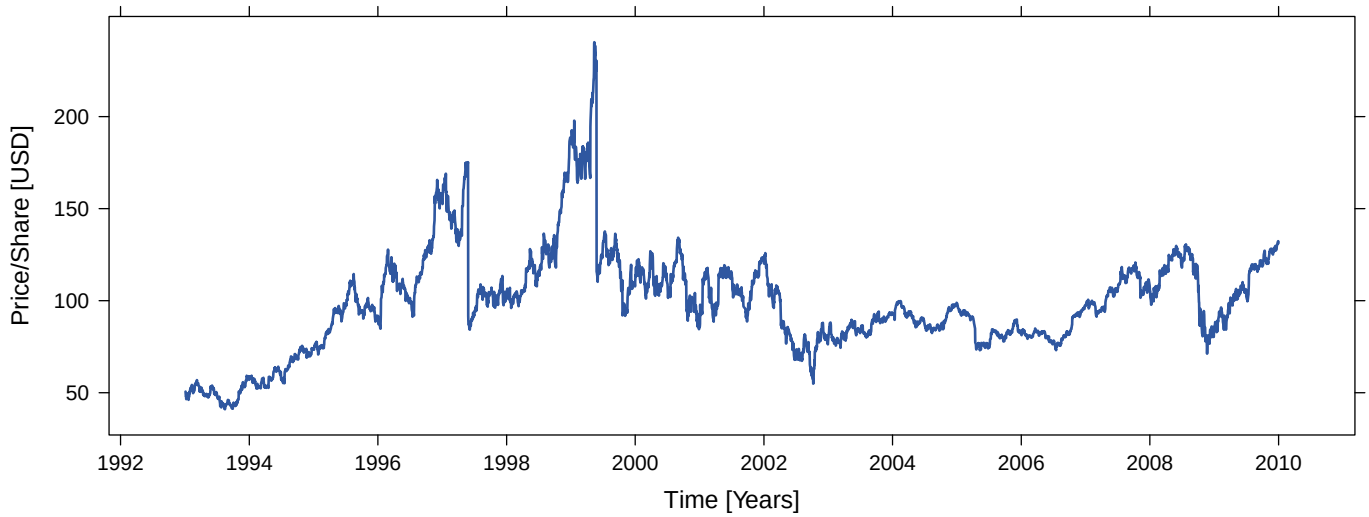

Fig. 23. Stock splits occurred on 28 May 1997 [split ratio 2:1] and 27 May 1999 [split ratio 2:1].

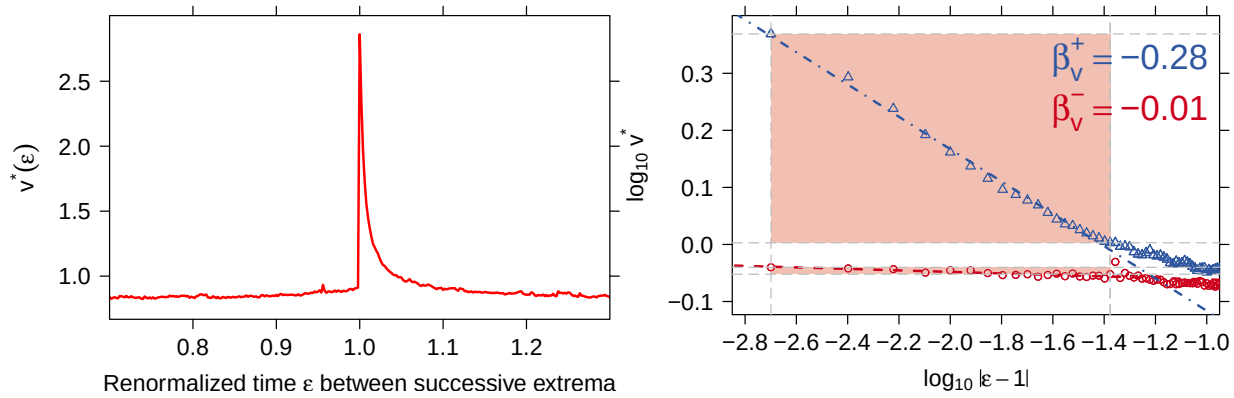

Fig. 24. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 15. Statistical test of power-law hypothesis for the IBM volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.251	0	**0.776**	−0.006	0	**1**
0.006	−0.271	0.0033	0.068	−0.006	0	**1**
0.008	−0.29	0.006	0.001	−0.013	0.0018	**0.215**
0.01	−0.298	0.0065	0	−0.01	0.0009	**0.634**
0.012	−0.302	0.006	0	−0.008	0.0008	**0.677**
0.014	−0.305	0.0056	0.003	−0.01	0.0007	**0.811**
0.016	−0.307	0.0051	0.032	−0.012	0.0014	**0.17**
0.018	−0.306	0.0046	0.096	−0.013	0.0015	**0.111**
0.02	−0.303	0.0043	**0.27**	−0.013	0.0014	**0.133**
0.022	−0.3	0.004	**0.416**	−0.014	0.0015	0.066
0.024	−0.299	0.0038	**0.577**	−0.014	0.0014	**0.103**
0.026	−0.298	0.0036	**0.735**	−0.013	0.0011	**0.196**
0.028	−0.297	0.0034	**0.846**	−0.014	0.0011	**0.195**
0.03	−0.295	0.0034	**0.869**	−0.013	0.0009	**0.267**
0.032	−0.293	0.0033	**0.934**	−0.013	0.0009	**0.311**
0.034	−0.291	0.0032	**0.95**	−0.013	0.0008	**0.329**
0.036	−0.289	0.0032	**0.928**	−0.013	0.0008	**0.343**
0.038	−0.287	0.0032	**0.919**	−0.013	0.0007	**0.368**
0.04	−0.285	0.0035	**0.774**	−0.013	0.0007	**0.431**
0.042	−0.283	0.004	**0.314**	−0.013	0.0007	**0.428**
0.044	−0.28	0.0046	0.018	−0.009	0.0027	0
0.046	−0.278	0.0051	0	−0.01	0.0023	0
0.048	−0.276	0.0057	0	−0.009	0.0025	0
0.05	−0.273	0.0064	0	−0.009	0.0024	0
0.052	−0.271	0.0067	0	−0.009	0.0021	0
0.054	−0.27	0.007	0	−0.009	0.002	0
0.056	−0.268	0.0074	0	−0.01	0.0018	0
0.058	−0.265	0.0079	0	−0.01	0.0016	0
0.06	−0.262	0.0086	0	−0.011	0.0014	0.002
0.062	−0.26	0.009	0	−0.011	0.0012	0.007
0.064	−0.258	0.0094	0	−0.012	0.0014	0
0.066	−0.256	0.0097	0	−0.012	0.0015	0
0.068	−0.254	0.0101	0	−0.013	0.0018	0
0.07	−0.252	0.0104	0	−0.014	0.0022	0
0.072	−0.25	0.0105	0	−0.014	0.0025	0
0.074	−0.249	0.0106	0	−0.015	0.0026	0
0.076	−0.247	0.0109	0	−0.016	0.0028	0

Intel Corporation (INTC). The INTC price time series contains 253,972,099 transactions.

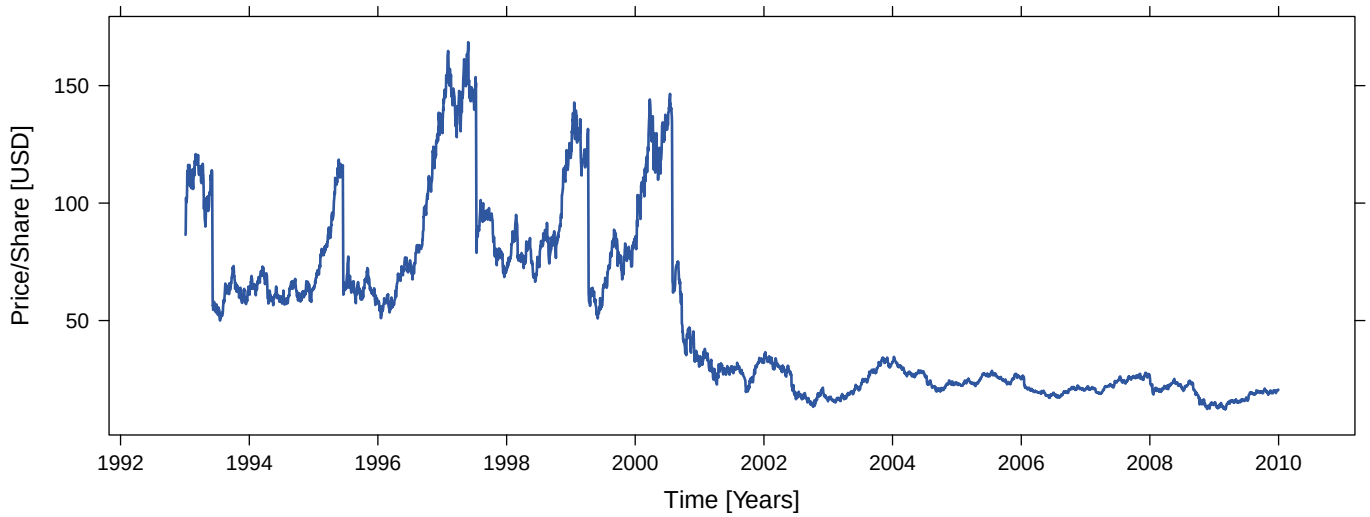

Fig. 25. Stock splits occurred on 7 June 1993 [split ratio 2:1], 19 June 1995 [split ratio 2:1], 14 July 1997 [split ratio 2:1], 12 April 1999 [split ratio 2:1], and 31 July 2000 [split ratio 2:1].

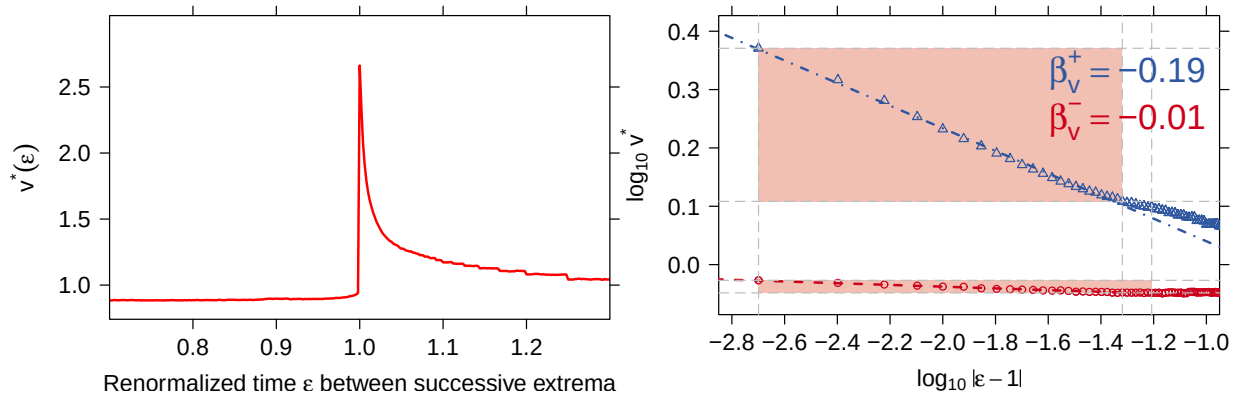

Fig. 26. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 16. Statistical test of power-law hypothesis for the INTC volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.179	0	**1**	−0.014	0	**0.793**
0.006	−0.187	0.0012	**0.275**	−0.015	0	**0.951**
0.008	−0.194	0.0022	0.064	−0.015	0	**0.998**
0.01	−0.198	0.0025	0.032	−0.015	0	**0.995**
0.012	−0.2	0.0025	0.075	−0.014	0.0002	**0.904**
0.014	−0.201	0.0023	**0.306**	−0.015	0.0002	**0.908**
0.016	−0.202	0.0021	**0.626**	−0.015	0.0003	**0.626**
0.018	−0.202	0.0019	**0.896**	−0.015	0.0003	**0.615**
0.02	−0.202	0.0018	**0.986**	−0.015	0.0003	**0.671**
0.022	−0.202	0.0017	**0.999**	−0.015	0.0003	**0.695**
0.024	−0.202	0.0015	**1**	−0.016	0.0003	**0.739**
0.026	−0.202	0.0014	**1**	−0.016	0.0002	**0.774**
0.028	−0.202	0.0013	**1**	−0.015	0.0002	**0.843**
0.03	−0.201	0.0013	**1**	−0.015	0.0002	**0.888**
0.032	−0.201	0.0012	**1**	−0.015	0.0002	**0.91**
0.034	−0.2	0.0012	**1**	−0.015	0.0002	**0.93**
0.036	−0.2	0.0012	**1**	−0.015	0.0001	**0.934**
0.038	−0.198	0.0012	**1**	−0.015	0.0001	**0.944**
0.04	−0.198	0.0012	**1**	−0.015	0.0001	**0.957**
0.042	−0.197	0.0014	**1**	−0.015	0.0001	**0.962**
0.044	−0.195	0.0018	**1**	−0.015	0.0001	**0.967**
0.046	−0.194	0.0022	**0.954**	−0.015	0.0001	**0.979**
0.048	−0.193	0.0025	**0.385**	−0.015	0.0001	**0.98**
0.05	−0.192	0.0027	0.025	−0.015	0.0001	**0.975**
0.052	−0.191	0.003	0	−0.015	0.0001	**0.946**
0.054	−0.19	0.0032	0	−0.015	0.0002	**0.819**
0.056	−0.189	0.0035	0	−0.015	0.0002	**0.569**
0.058	−0.188	0.0037	0	−0.015	0.0003	**0.488**
0.06	−0.187	0.004	0	−0.014	0.0003	**0.267**
0.062	−0.185	0.0043	0	−0.014	0.0004	**0.173**
0.064	−0.184	0.0045	0	−0.014	0.0004	0.097
0.066	−0.183	0.0047	0	−0.014	0.0004	0.045
0.068	−0.182	0.0049	0	−0.014	0.0005	0.031
0.07	−0.181	0.0051	0	−0.014	0.0005	0.011
0.072	−0.18	0.0053	0	−0.014	0.0006	0.002
0.074	−0.179	0.0055	0	−0.013	0.0006	0.001
0.076	−0.178	0.0057	0	−0.013	0.0007	0.001

Johnson & Johnson Common Stock (JNJ). The JNJ price time series contains 56,780,934 transactions.

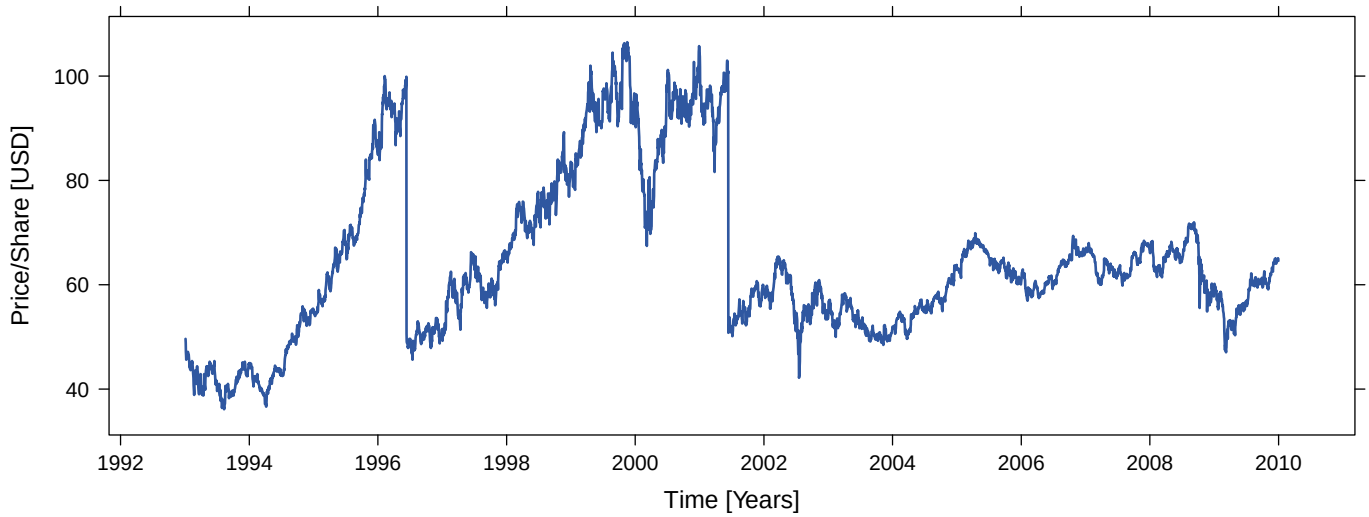

Fig. 27. Stock splits occurred on 12 June 1996 [split ratio 2:1] and 13 June 2001 [split ratio 2:1].

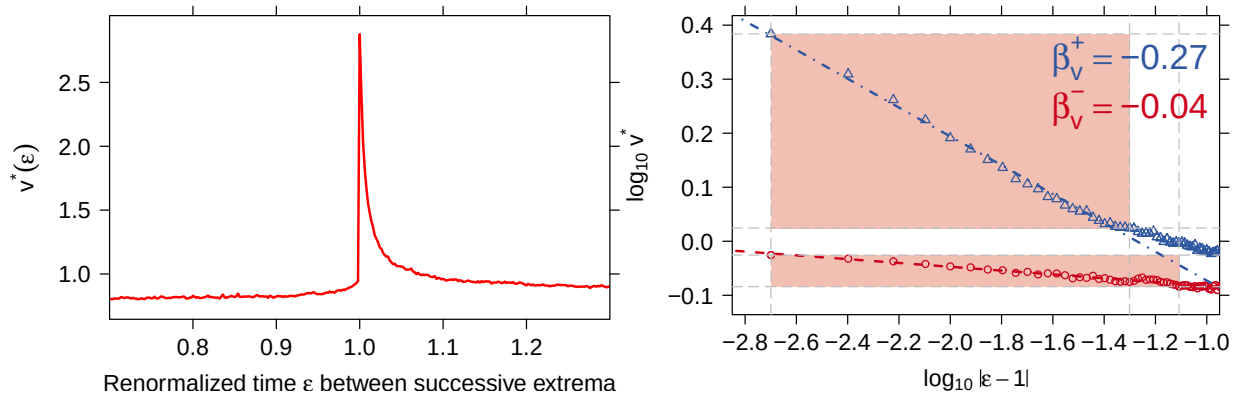

Fig. 28. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 17. Statistical test of power-law hypothesis for the JNJ volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.247	0	**0.758**	−0.022	0	**1**
0.006	−0.254	0.0012	**0.508**	−0.024	0.0003	**0.826**
0.008	−0.262	0.0025	**0.262**	−0.026	0.0007	**0.702**
0.01	−0.272	0.0043	0.025	−0.029	0.0011	**0.478**
0.012	−0.276	0.0046	0.018	−0.029	0.0011	**0.428**
0.014	−0.278	0.0044	0.042	−0.031	0.0012	**0.31**
0.016	−0.279	0.0041	**0.143**	−0.032	0.0012	**0.297**
0.018	−0.282	0.004	**0.21**	−0.033	0.0015	**0.113**
0.02	−0.283	0.0037	**0.411**	−0.033	0.0013	**0.152**
0.022	−0.283	0.0034	**0.646**	−0.034	0.0014	**0.117**
0.024	−0.283	0.0032	**0.799**	−0.034	0.0012	**0.175**
0.026	−0.282	0.003	**0.928**	−0.034	0.0011	**0.26**
0.028	−0.282	0.0028	**0.961**	−0.034	0.001	**0.245**
0.03	−0.282	0.0027	**0.986**	−0.035	0.0012	**0.168**
0.032	−0.281	0.0026	**0.996**	−0.035	0.0013	**0.105**
0.034	−0.279	0.0026	**0.997**	−0.036	0.0013	0.056
0.036	−0.277	0.0025	**0.994**	−0.035	0.001	**0.226**
0.038	−0.277	0.0025	**0.996**	−0.035	0.0011	**0.144**
0.04	−0.276	0.0025	**0.999**	−0.035	0.001	**0.212**
0.042	−0.274	0.0025	**0.999**	−0.036	0.001	**0.146**
0.044	−0.272	0.0025	**0.997**	−0.036	0.0011	0.099
0.046	−0.271	0.0028	**0.988**	−0.037	0.0012	0.076
0.048	−0.269	0.0033	**0.753**	−0.037	0.0012	0.064
0.05	−0.266	0.0039	**0.117**	−0.037	0.0012	0.058
0.052	−0.264	0.0048	0	−0.037	0.0011	0.067
0.054	−0.262	0.0053	0	−0.036	0.001	**0.145**
0.056	−0.26	0.0058	0	−0.035	0.0008	**0.264**
0.058	−0.258	0.0063	0	−0.035	0.0008	**0.277**
0.06	−0.256	0.0069	0	−0.035	0.001	0.075
0.062	−0.253	0.0076	0	−0.034	0.0012	0.011
0.064	−0.252	0.0081	0	−0.034	0.0014	0.004
0.066	−0.25	0.0084	0	−0.034	0.0013	0.004
0.068	−0.249	0.0086	0	−0.034	0.0013	0.003
0.07	−0.247	0.0088	0	−0.034	0.0012	0.006
0.072	−0.245	0.009	0	−0.034	0.0012	0.01
0.074	−0.244	0.0092	0	−0.034	0.0011	0.026
0.076	−0.243	0.0093	0	−0.034	0.001	0.052

JP Morgan Chase & Co. Common Stock (JPM). The JPM price time series contains 150,161,709 transactions.

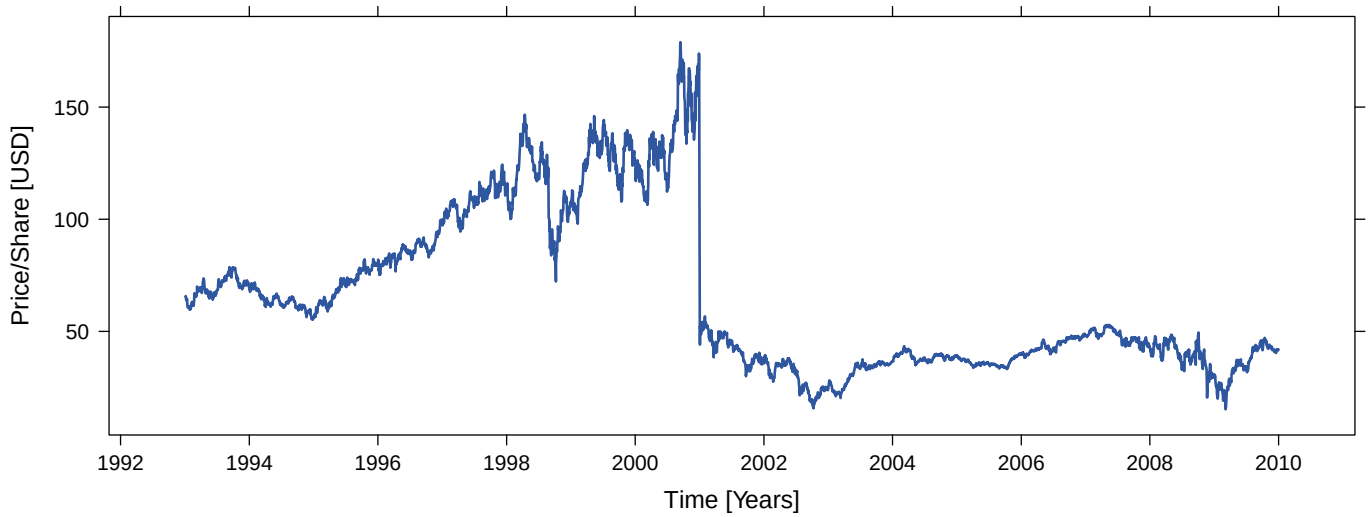

Fig. 29. Stock splits occurred on 15 June 1998 [split ratio 2:1] and 12 June 2000 [split ratio 3:2].

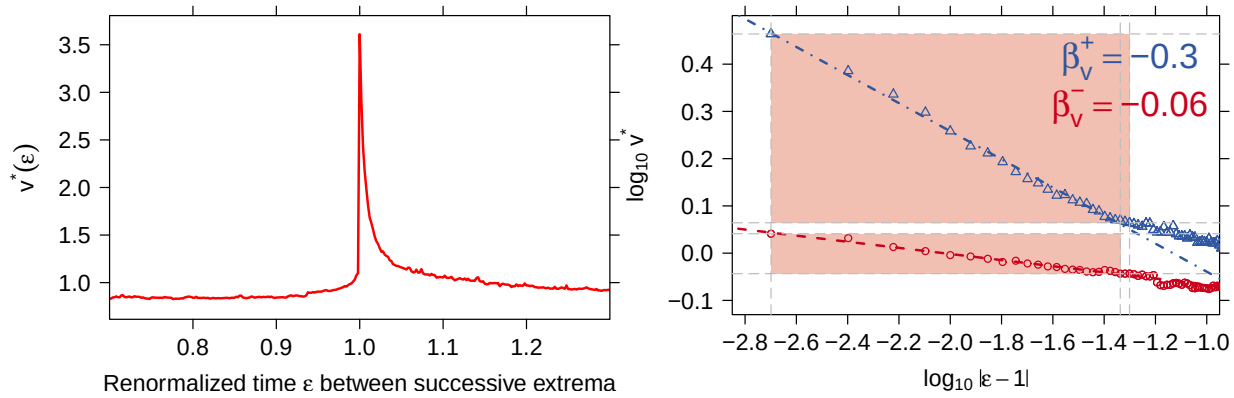

Fig. 30. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 18. Statistical test of power-law hypothesis for the JPM volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.26	0	**0.779**	−0.031	0	**0.747**
0.006	−0.267	0.0011	**0.508**	−0.055	0.0041	0
0.008	−0.274	0.0023	**0.259**	−0.062	0.0037	0
0.01	−0.288	0.0058	0	−0.066	0.0032	0
0.012	−0.301	0.008	0	−0.066	0.0027	0.001
0.014	−0.304	0.0076	0	−0.067	0.0023	0.001
0.016	−0.306	0.0071	0	−0.068	0.0021	0.006
0.018	−0.31	0.007	0	−0.066	0.0018	0.01
0.02	−0.313	0.0068	0	−0.066	0.0016	0.028
0.022	−0.313	0.0063	0	−0.066	0.0015	0.051
0.024	−0.314	0.006	0	−0.067	0.0014	0.083
0.026	−0.315	0.0057	0	−0.066	0.0013	**0.134**
0.028	−0.313	0.0053	0	−0.067	0.0012	**0.2**
0.03	−0.312	0.005	0.001	−0.067	0.0011	**0.297**
0.032	−0.31	0.0048	0.009	−0.067	0.001	**0.365**
0.034	−0.308	0.0047	0.013	−0.067	0.001	**0.459**
0.036	−0.306	0.0045	0.052	−0.067	0.0009	**0.544**
0.038	−0.305	0.0044	**0.104**	−0.067	0.0009	**0.572**
0.04	−0.304	0.0043	**0.182**	−0.066	0.0009	**0.548**
0.042	−0.303	0.0042	**0.29**	−0.065	0.0009	**0.483**
0.044	−0.302	0.0041	**0.337**	−0.064	0.001	**0.29**
0.046	−0.3	0.0041	**0.287**	−0.064	0.001	**0.189**
0.048	−0.299	0.0041	**0.211**	−0.064	0.0011	0.067
0.05	−0.297	0.0041	**0.128**	−0.063	0.0013	0.018
0.052	−0.295	0.0042	0.05	−0.063	0.0014	0.001
0.054	−0.293	0.0042	0.014	−0.063	0.0013	0.011
0.056	−0.291	0.0043	0.001	−0.063	0.0014	0.002
0.058	−0.288	0.0054	0	−0.063	0.0014	0.002
0.06	−0.285	0.0063	0	−0.062	0.0014	0
0.062	−0.283	0.0067	0	−0.062	0.0015	0
0.064	−0.282	0.007	0	−0.063	0.0012	0.003
0.066	−0.28	0.0074	0	−0.064	0.0016	0
0.068	−0.277	0.0081	0	−0.065	0.0023	0
0.07	−0.276	0.0085	0	−0.066	0.0027	0
0.072	−0.274	0.0089	0	−0.067	0.0031	0
0.074	−0.271	0.0097	0	−0.067	0.0032	0
0.076	−0.269	0.01	0	−0.067	0.0032	0

Kraft Foods Inc. Common Stock (KFT). The KFT price time series contains 34,206,284 transactions.

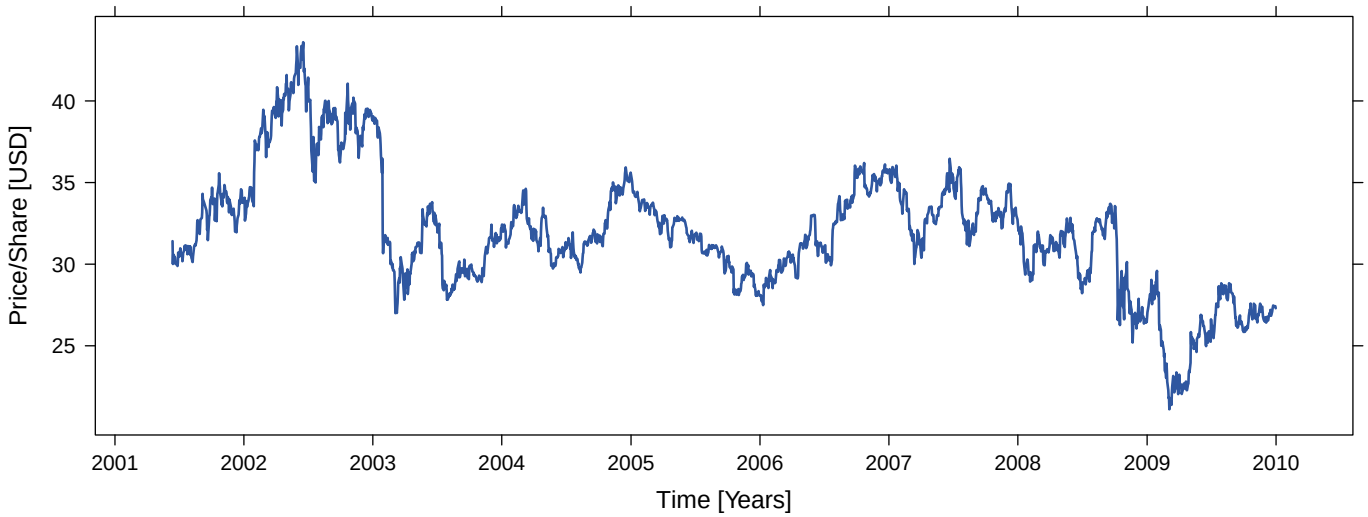

Fig. 31. There was no stock split in this period of time.

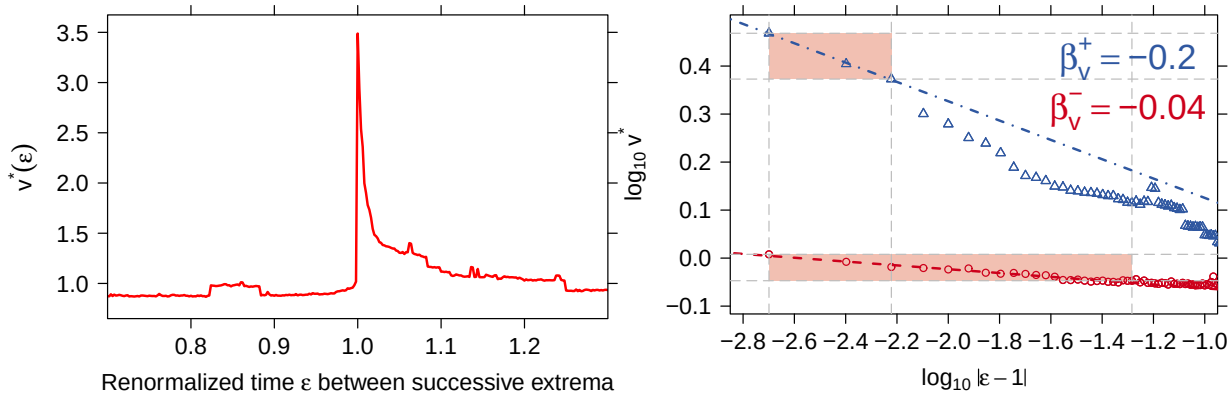

Fig. 32. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 19. Statistical test of power-law hypothesis for the KFT volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.212	0	**1**	−0.051	0	**1**
0.006	−0.201	0.0017	**0.393**	−0.054	0.0005	**0.783**
0.008	−0.258	0.0147	0	−0.049	0.0013	**0.526**
0.01	−0.273	0.0149	0	−0.046	0.0016	**0.366**
0.012	−0.284	0.0142	0	−0.04	0.0028	0.045
0.014	−0.285	0.0126	0	−0.041	0.0021	**0.128**
0.016	−0.288	0.0115	0	−0.041	0.0018	**0.191**
0.018	−0.296	0.0106	0	−0.04	0.0018	**0.151**
0.02	−0.303	0.0111	0	−0.039	0.0017	**0.151**
0.022	−0.304	0.0109	0	−0.038	0.0016	**0.186**
0.024	−0.304	0.0101	0	−0.038	0.0016	**0.164**
0.026	−0.304	0.0095	0	−0.038	0.0014	**0.214**
0.028	−0.302	0.0086	0	−0.039	0.0013	**0.317**
0.03	−0.3	0.0079	0	−0.04	0.0012	**0.352**
0.032	−0.297	0.0072	0	−0.041	0.0011	**0.398**
0.034	−0.294	0.0071	0	−0.041	0.001	**0.424**
0.036	−0.29	0.007	0	−0.041	0.001	**0.424**
0.038	−0.285	0.007	0	−0.041	0.001	**0.476**
0.04	−0.281	0.007	0	−0.041	0.0009	**0.555**
0.042	−0.277	0.007	0	−0.041	0.0008	**0.579**
0.044	−0.273	0.007	0	−0.041	0.0008	**0.582**
0.046	−0.27	0.0074	0	−0.041	0.0008	**0.58**
0.048	−0.266	0.0082	0	−0.04	0.0007	**0.695**
0.05	−0.264	0.0088	0	−0.04	0.001	**0.315**
0.052	−0.261	0.0093	0	−0.039	0.0013	**0.103**
0.054	−0.257	0.0099	0	−0.038	0.0018	0.003
0.056	−0.255	0.0103	0	−0.038	0.0018	0.002
0.058	−0.251	0.0108	0	−0.038	0.0021	0
0.06	−0.248	0.0113	0	−0.037	0.002	0.001
0.062	−0.242	0.0127	0	−0.037	0.002	0
0.064	−0.236	0.014	0	−0.037	0.002	0.001
0.066	−0.233	0.0143	0	−0.037	0.002	0
0.068	−0.231	0.0148	0	−0.037	0.002	0
0.07	−0.229	0.0152	0	−0.037	0.002	0
0.072	−0.226	0.0156	0	−0.037	0.002	0
0.074	−0.224	0.016	0	−0.036	0.0021	0
0.076	−0.222	0.0162	0	−0.036	0.002	0

Coca-Cola Company (The) Common Stock (KO). The KO price time series contains 47,554,230 transactions.

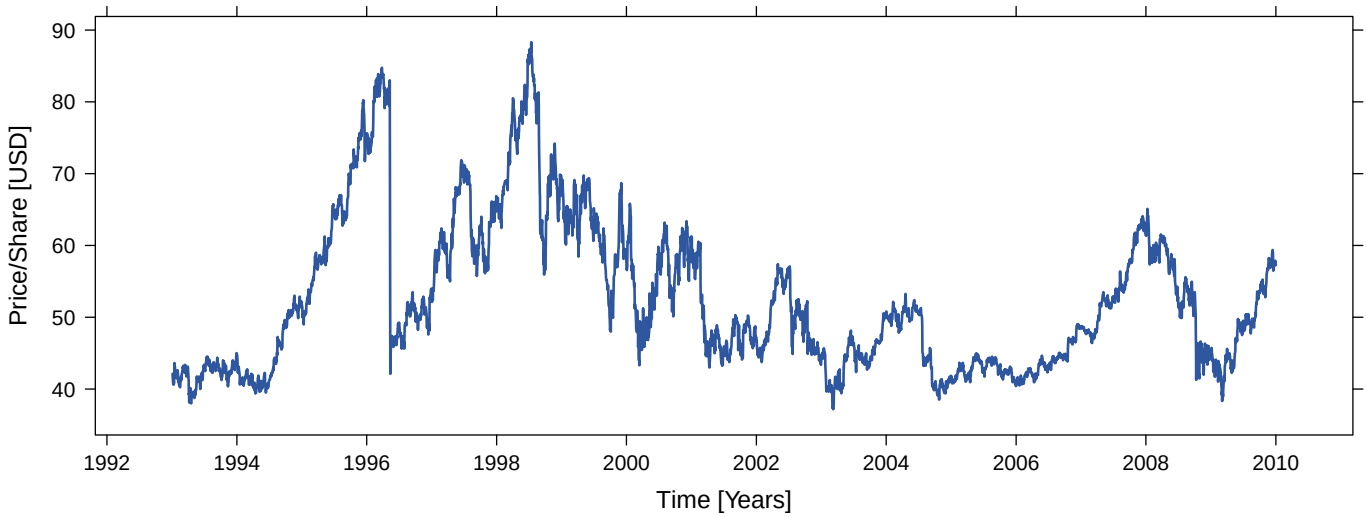

Fig. 33. A stock split occurred on 13 May 1996 [split ratio 2:1].

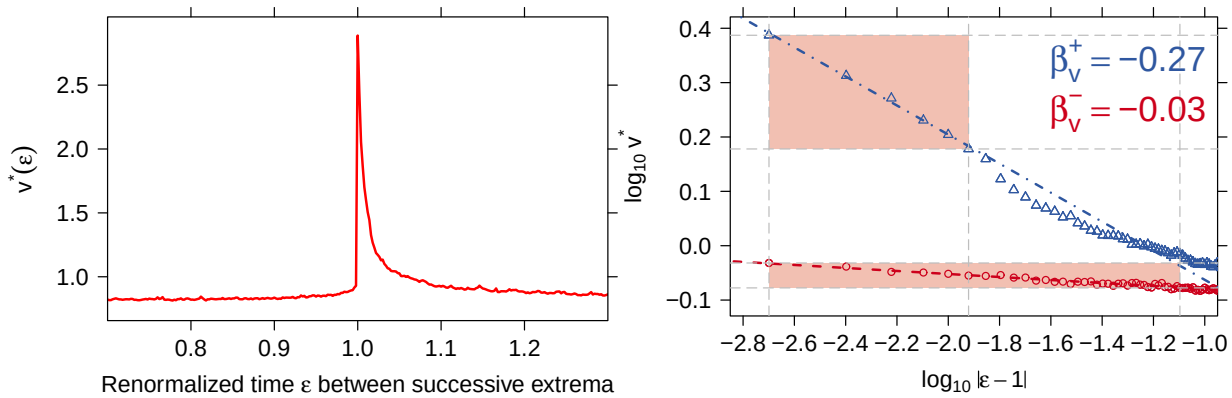

Fig. 34. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 20. Statistical test of power-law hypothesis for the KO volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.246	0	**1**	−0.022	0	**0.775**
0.006	−0.243	0.0005	**0.772**	−0.032	0.0018	**0.23**
0.008	−0.255	0.003	**0.166**	−0.031	0.0012	**0.455**
0.01	−0.26	0.0034	**0.142**	−0.03	0.0009	**0.657**
0.012	−0.267	0.0038	**0.17**	−0.03	0.0007	**0.785**
0.014	−0.27	0.0042	0.078	−0.029	0.0006	**0.847**
0.016	−0.283	0.0077	0	−0.027	0.0009	**0.57**
0.018	−0.293	0.0107	0	−0.027	0.0008	**0.69**
0.02	−0.299	0.0118	0	−0.027	0.0008	**0.591**
0.022	−0.305	0.0122	0	−0.028	0.0005	**0.875**
0.024	−0.307	0.0118	0	−0.028	0.0006	**0.818**
0.026	−0.307	0.0111	0	−0.029	0.0009	**0.48**
0.028	−0.307	0.0106	0	−0.029	0.0009	**0.423**
0.03	−0.305	0.0098	0	−0.03	0.0011	**0.212**
0.032	−0.304	0.0092	0	−0.03	0.001	**0.303**
0.034	−0.303	0.0088	0	−0.029	0.0009	**0.411**
0.036	−0.302	0.0084	0	−0.029	0.0007	**0.567**
0.038	−0.3	0.008	0	−0.029	0.0007	**0.475**
0.04	−0.299	0.0077	0	−0.029	0.0007	**0.542**
0.042	−0.297	0.0075	0	−0.029	0.0007	**0.549**
0.044	−0.294	0.0072	0	−0.03	0.0006	**0.55**
0.046	−0.291	0.0071	0	−0.029	0.0006	**0.613**
0.048	−0.289	0.007	0	−0.029	0.0006	**0.677**
0.05	−0.286	0.0069	0	−0.029	0.0005	**0.736**
0.052	−0.285	0.0068	0	−0.028	0.0005	**0.689**
0.054	−0.282	0.0067	0	−0.028	0.0008	**0.251**
0.056	−0.28	0.0067	0	−0.028	0.0009	**0.199**
0.058	−0.278	0.0067	0	−0.028	0.0009	**0.151**
0.06	−0.275	0.0067	0	−0.028	0.0008	**0.243**
0.062	−0.273	0.0071	0	−0.028	0.0007	**0.38**
0.064	−0.271	0.0076	0	−0.028	0.0008	**0.194**
0.066	−0.269	0.0079	0	−0.027	0.0008	**0.158**
0.068	−0.267	0.0083	0	−0.027	0.001	0.056
0.07	−0.265	0.0086	0	−0.027	0.0009	0.083
0.072	−0.263	0.0088	0	−0.027	0.0009	0.076
0.074	−0.261	0.009	0	−0.027	0.0008	**0.159**
0.076	−0.259	0.0093	0	−0.027	0.0007	**0.239**

McDonald's Corporation Common Stock (MCD). The MCD price time series contains 42,285,966 transactions.

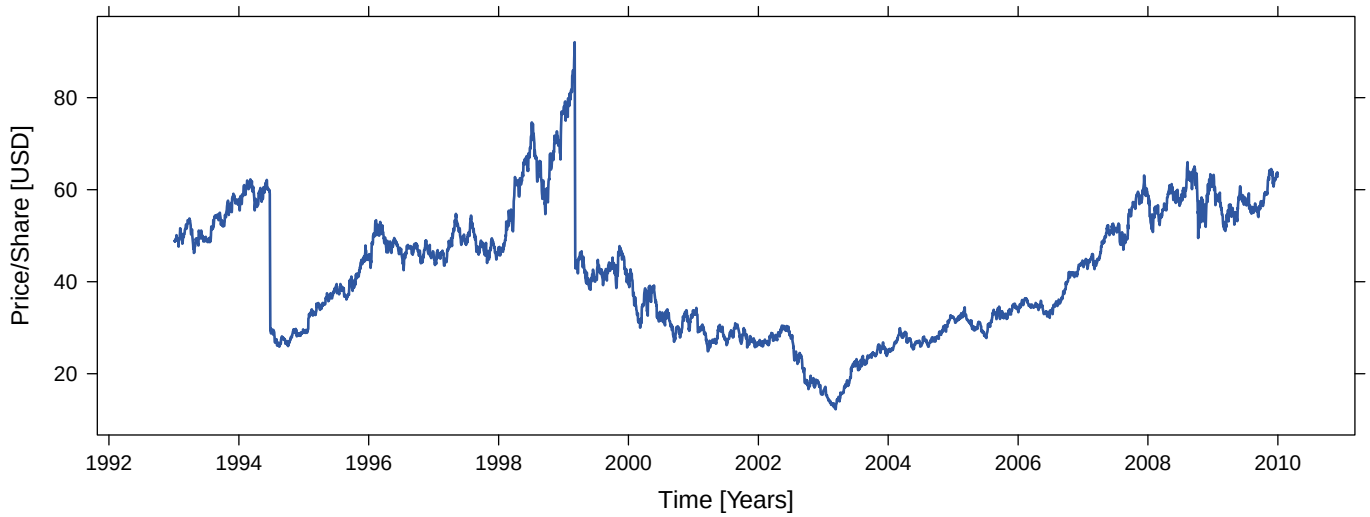

Fig. 35. Stock splits occurred on 27 June 1994 [split ratio 2:1] and 8 March 1999 [split ratio 2:1].

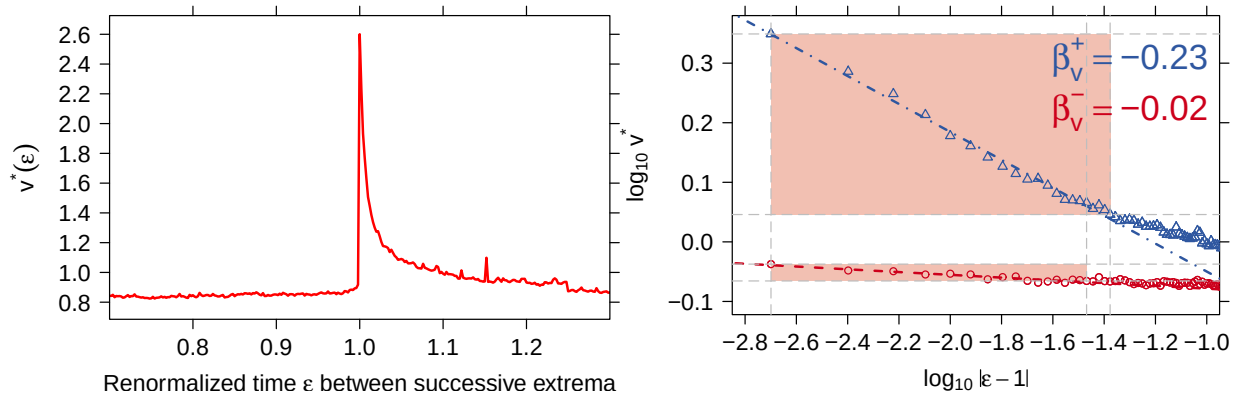

Fig. 36. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 21. Statistical test of power-law hypothesis for the MCD volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.209	0	**1**	−0.035	0	**1**
0.006	−0.21	0.0001	**0.934**	−0.026	0.0015	**0.323**
0.008	−0.221	0.003	**0.147**	−0.027	0.001	**0.609**
0.01	−0.238	0.0065	0	−0.023	0.0014	**0.376**
0.012	−0.243	0.0069	0	−0.022	0.0016	**0.235**
0.014	−0.248	0.0068	0	−0.025	0.0009	**0.673**
0.016	−0.251	0.0065	0	−0.024	0.0009	**0.617**
0.018	−0.252	0.006	0	−0.022	0.0012	**0.352**
0.02	−0.252	0.0055	0	−0.024	0.0007	**0.731**
0.022	−0.249	0.005	0.002	−0.025	0.001	**0.408**
0.024	−0.247	0.0046	0.015	−0.025	0.001	**0.395**
0.026	−0.246	0.0044	0.048	−0.025	0.0007	**0.752**
0.028	−0.247	0.0041	0.093	−0.025	0.0007	**0.603**
0.03	−0.246	0.0039	**0.161**	−0.024	0.0007	**0.66**
0.032	−0.244	0.0038	**0.18**	−0.023	0.0011	**0.206**
0.034	−0.241	0.0037	**0.206**	−0.023	0.0013	**0.103**
0.036	−0.24	0.0036	**0.236**	−0.022	0.0014	0.064
0.038	−0.237	0.0036	**0.182**	−0.021	0.0019	0.003
0.04	−0.235	0.0036	**0.161**	−0.02	0.0019	0.002
0.042	−0.234	0.0036	**0.144**	−0.02	0.0019	0
0.044	−0.233	0.0038	0.043	−0.02	0.0019	0
0.046	−0.232	0.0039	0.034	−0.019	0.002	0
0.048	−0.231	0.004	0.006	−0.019	0.002	0
0.05	−0.229	0.0043	0.001	−0.018	0.002	0
0.052	−0.227	0.0046	0	−0.019	0.0019	0
0.054	−0.226	0.0049	0	−0.019	0.0018	0
0.056	−0.224	0.0052	0	−0.019	0.0017	0
0.058	−0.223	0.0054	0	−0.019	0.0016	0
0.06	−0.221	0.0055	0	−0.019	0.0016	0
0.062	−0.22	0.0057	0	−0.019	0.0015	0
0.064	−0.218	0.0063	0	−0.019	0.0015	0
0.066	−0.216	0.0067	0	−0.019	0.0014	0
0.068	−0.215	0.0069	0	−0.018	0.0014	0.001
0.07	−0.214	0.007	0	−0.018	0.0014	0.002
0.072	−0.213	0.0071	0	−0.018	0.0014	0.002
0.074	−0.212	0.0072	0	−0.018	0.0014	0
0.076	−0.21	0.0076	0	−0.017	0.0014	0

3M Company Common Stock (MMM). The MMM price time series contains 27,312,827 transactions.

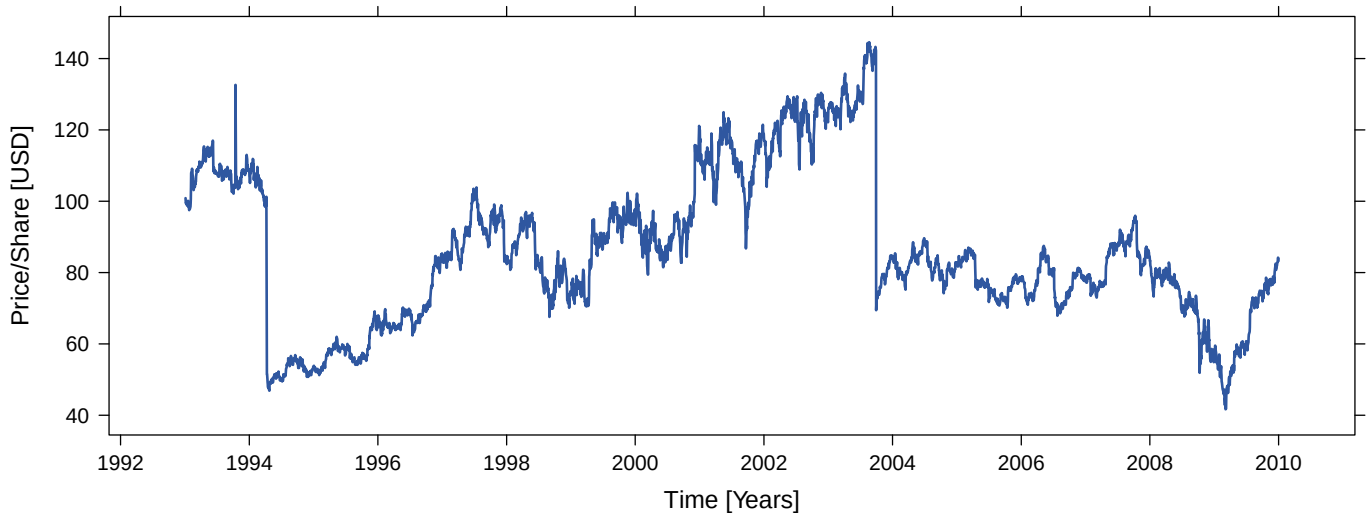

Fig. 37. Stock splits occurred on 11 April 1994 [split ratio 2:1] and 30 September 2003 [split ratio 2:1].

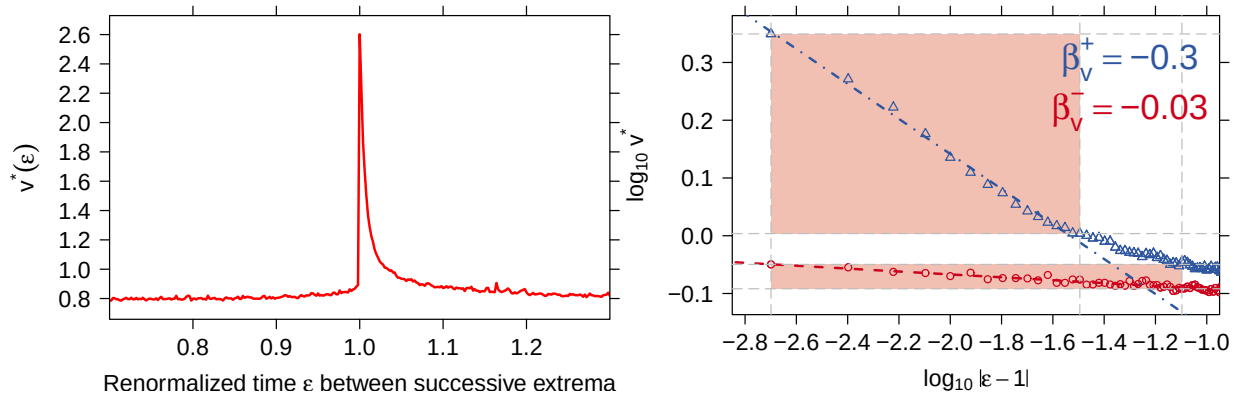

Fig. 38. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 22. Statistical test of power-law hypothesis for the MMM volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.259	0	**1**	−0.017	0	**1**
0.006	−0.265	0.0009	**0.701**	−0.026	0.0015	**0.444**
0.008	−0.282	0.0048	0.043	−0.026	0.0011	**0.696**
0.01	−0.3	0.0077	0	−0.028	0.0012	**0.639**
0.012	−0.309	0.0088	0	−0.023	0.0015	**0.49**
0.014	−0.314	0.0087	0	−0.027	0.0015	**0.404**
0.016	−0.315	0.0079	0	−0.027	0.0014	**0.444**
0.018	−0.317	0.0074	0	−0.026	0.0011	**0.622**
0.02	−0.317	0.0068	0.003	−0.026	0.0008	**0.771**
0.022	−0.316	0.0063	0.001	−0.026	0.0008	**0.783**
0.024	−0.315	0.0059	0.019	−0.023	0.0015	**0.236**
0.026	−0.313	0.0056	0.051	−0.025	0.0007	**0.831**
0.028	−0.309	0.0053	0.083	−0.025	0.0011	**0.449**
0.03	−0.306	0.0051	**0.101**	−0.024	0.0006	**0.89**
0.032	−0.303	0.005	**0.107**	−0.024	0.0008	**0.691**
0.034	−0.299	0.005	0.098	−0.025	0.0006	**0.87**
0.036	−0.295	0.005	0.088	−0.025	0.0009	**0.583**
0.038	−0.291	0.0058	0.002	−0.025	0.0008	**0.637**
0.04	−0.287	0.0068	0	−0.025	0.0007	**0.769**
0.042	−0.283	0.0079	0	−0.025	0.0007	**0.71**
0.044	−0.281	0.0084	0	−0.026	0.0009	**0.521**
0.046	−0.278	0.0087	0	−0.026	0.0008	**0.54**
0.048	−0.276	0.0091	0	−0.026	0.0008	**0.523**
0.05	−0.273	0.0094	0	−0.025	0.0005	**0.85**
0.052	−0.271	0.0097	0	−0.025	0.0006	**0.835**
0.054	−0.268	0.0101	0	−0.025	0.0005	**0.867**
0.056	−0.266	0.0103	0	−0.024	0.001	**0.238**
0.058	−0.263	0.0107	0	−0.023	0.0014	0.03
0.06	−0.26	0.011	0	−0.023	0.0014	0.026
0.062	−0.257	0.0113	0	−0.023	0.0014	0.034
0.064	−0.255	0.0115	0	−0.023	0.0013	0.034
0.066	−0.252	0.0118	0	−0.023	0.0012	0.086
0.068	−0.25	0.0122	0	−0.023	0.0011	**0.107**
0.07	−0.247	0.0125	0	−0.023	0.0012	0.067
0.072	−0.246	0.0127	0	−0.023	0.0011	**0.102**
0.074	−0.244	0.013	0	−0.024	0.0009	**0.229**
0.076	−0.242	0.0132	0	−0.024	0.0007	**0.398**

Merck & Company, Inc. Common Stock (MRK). The MRK price time series contains 63,308,477 transactions.

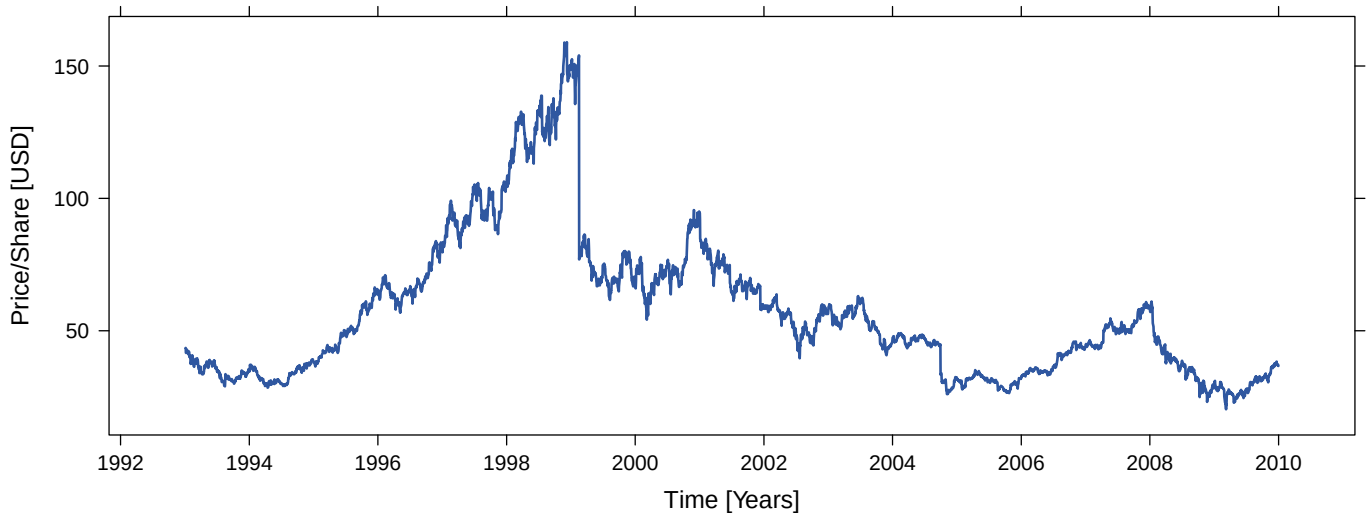

Fig. 39. A stock split occurred on 17 February 1999 [split ratio 2:1].

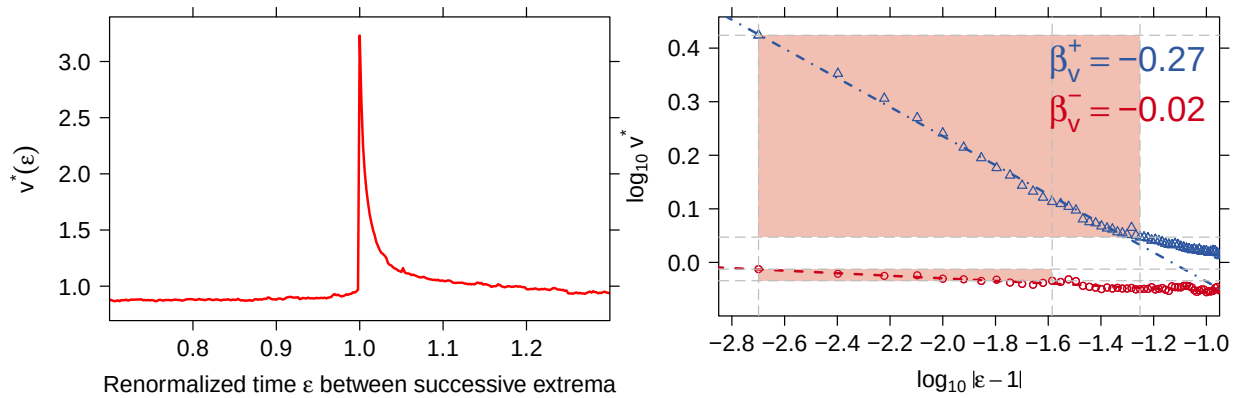

Fig. 40. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 23. Statistical test of power-law hypothesis for the MRK volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.237	0	**1**	−0.028	0	**1**
0.006	−0.246	0.0014	**0.414**	−0.026	0.0003	**0.829**
0.008	−0.254	0.0027	**0.204**	−0.02	0.0017	**0.173**
0.01	−0.26	0.0033	**0.153**	−0.022	0.001	**0.499**
0.012	−0.267	0.0044	0.017	−0.023	0.0007	**0.678**
0.014	−0.272	0.005	0.004	−0.024	0.0006	**0.822**
0.016	−0.276	0.0054	0	−0.023	0.0006	**0.746**
0.018	−0.278	0.0052	0.004	−0.024	0.0005	**0.894**
0.02	−0.282	0.0054	0	−0.025	0.0008	**0.464**
0.022	−0.284	0.0056	0.001	−0.026	0.0011	**0.216**
0.024	−0.286	0.0056	0	−0.025	0.0008	**0.425**
0.026	−0.287	0.0055	0	−0.023	0.0011	**0.13**
0.028	−0.286	0.005	0.002	−0.022	0.0014	0.036
0.03	−0.285	0.0046	0.041	−0.02	0.0022	0.001
0.032	−0.284	0.0043	**0.139**	−0.019	0.0025	0
0.034	−0.284	0.0041	**0.249**	−0.02	0.002	0
0.036	−0.285	0.0039	**0.39**	−0.021	0.0017	0.002
0.038	−0.284	0.0038	**0.519**	−0.022	0.0013	0.013
0.04	−0.284	0.0036	**0.695**	−0.023	0.0016	0.001
0.042	−0.283	0.0035	**0.77**	−0.024	0.0017	0
0.044	−0.282	0.0034	**0.852**	−0.024	0.0018	0
0.046	−0.281	0.0033	**0.862**	−0.024	0.0018	0
0.048	−0.279	0.0033	**0.879**	−0.025	0.0019	0
0.05	−0.278	0.0033	**0.891**	−0.025	0.0018	0
0.052	−0.274	0.0034	**0.72**	−0.025	0.0018	0
0.054	−0.273	0.0035	**0.603**	−0.025	0.0018	0
0.056	−0.271	0.0036	**0.34**	−0.025	0.0017	0
0.058	−0.269	0.0043	0.002	−0.025	0.0017	0
0.06	−0.267	0.005	0	−0.025	0.0016	0
0.062	−0.265	0.0054	0	−0.025	0.0015	0
0.064	−0.263	0.0061	0	−0.025	0.0015	0
0.066	−0.262	0.0066	0	−0.025	0.0014	0.001
0.068	−0.26	0.0071	0	−0.025	0.0014	0
0.07	−0.258	0.0075	0	−0.025	0.0013	0
0.072	−0.256	0.0079	0	−0.025	0.0013	0.001
0.074	−0.255	0.0082	0	−0.024	0.0012	0.001
0.076	−0.253	0.0086	0	−0.024	0.0012	0

Microsoft Corporation (MSFT). The MSFT price time series contains 250,448,998 transactions.

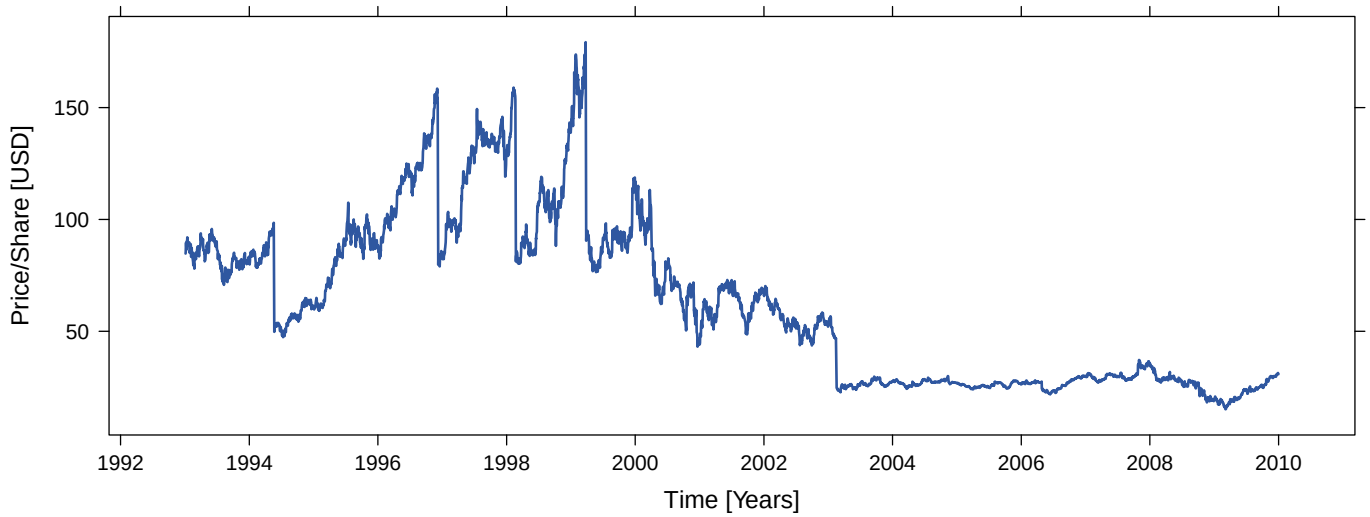

Fig. 41. Stock splits occurred on 23 May 1994 [split ratio 2:1], 9 December 1996 [split ratio 2:1], 23 February 1998 [split ratio 2:1], 29 March 1999 [split ratio 2:1], and 18 February 2003 [split ratio 2:1].

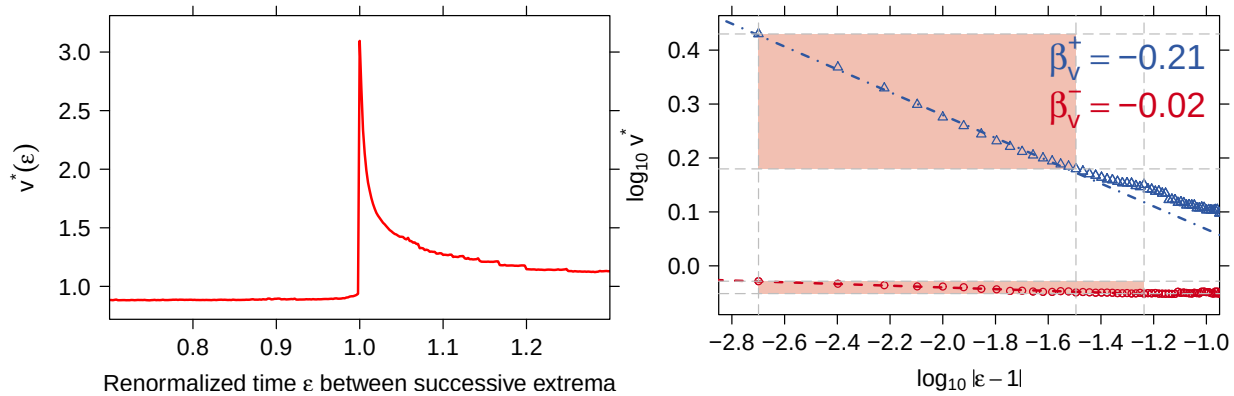

Fig. 42. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 24. Statistical test of power-law hypothesis for the MSFT volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.205	0	**0.771**	−0.015	0	**1**
0.006	−0.21	0.0008	**0.567**	−0.015	0	**0.992**
0.008	−0.216	0.0019	**0.214**	−0.015	0	**0.992**
0.01	−0.22	0.0023	**0.161**	−0.014	0.0003	**0.727**
0.012	−0.221	0.0021	**0.569**	−0.014	0.0004	**0.643**
0.014	−0.222	0.0019	**0.874**	−0.015	0.0003	**0.672**
0.016	−0.222	0.0017	**0.983**	−0.015	0.0005	**0.364**
0.018	−0.222	0.0015	**1**	−0.017	0.0008	0.068
0.02	−0.221	0.0014	**1**	−0.017	0.0008	0.069
0.022	−0.22	0.0013	**1**	−0.018	0.0009	0.03
0.024	−0.218	0.0012	**1**	−0.018	0.0009	0.02
0.026	−0.216	0.0013	**1**	−0.018	0.0008	0.014
0.028	−0.215	0.0018	**1**	−0.018	0.0007	0.058
0.03	−0.213	0.0024	**0.927**	−0.017	0.0006	**0.118**
0.032	−0.211	0.0028	**0.399**	−0.017	0.0006	**0.145**
0.034	−0.21	0.0031	0.036	−0.017	0.0005	**0.198**
0.036	−0.208	0.0033	0	−0.017	0.0005	**0.223**
0.038	−0.207	0.0036	0	−0.017	0.0004	**0.264**
0.04	−0.205	0.0038	0	−0.017	0.0004	**0.254**
0.042	−0.204	0.004	0	−0.016	0.0004	**0.294**
0.044	−0.203	0.0042	0	−0.016	0.0004	**0.293**
0.046	−0.201	0.0044	0	−0.016	0.0004	**0.309**
0.048	−0.2	0.0045	0	−0.016	0.0004	**0.338**
0.05	−0.198	0.0047	0	−0.016	0.0004	**0.285**
0.052	−0.196	0.0051	0	−0.016	0.0004	**0.284**
0.054	−0.195	0.0053	0	−0.016	0.0004	**0.259**
0.056	−0.194	0.0056	0	−0.016	0.0004	**0.112**
0.058	−0.192	0.006	0	−0.015	0.0004	**0.1**
0.06	−0.191	0.0062	0	−0.015	0.0005	0.052
0.062	−0.189	0.0064	0	−0.015	0.0005	0.034
0.064	−0.189	0.0065	0	−0.015	0.0005	0.017
0.066	−0.187	0.0067	0	−0.015	0.0006	0.005
0.068	−0.186	0.0068	0	−0.015	0.0006	0.002
0.07	−0.185	0.0069	0	−0.015	0.0006	0.005
0.072	−0.185	0.0068	0	−0.015	0.0006	0
0.074	−0.185	0.0067	0	−0.014	0.0007	0
0.076	−0.184	0.0066	0	−0.014	0.0007	0.001

Pfizer, Inc. Common Stock (PFE). The PFE price time series contains 103,602,977 transactions.

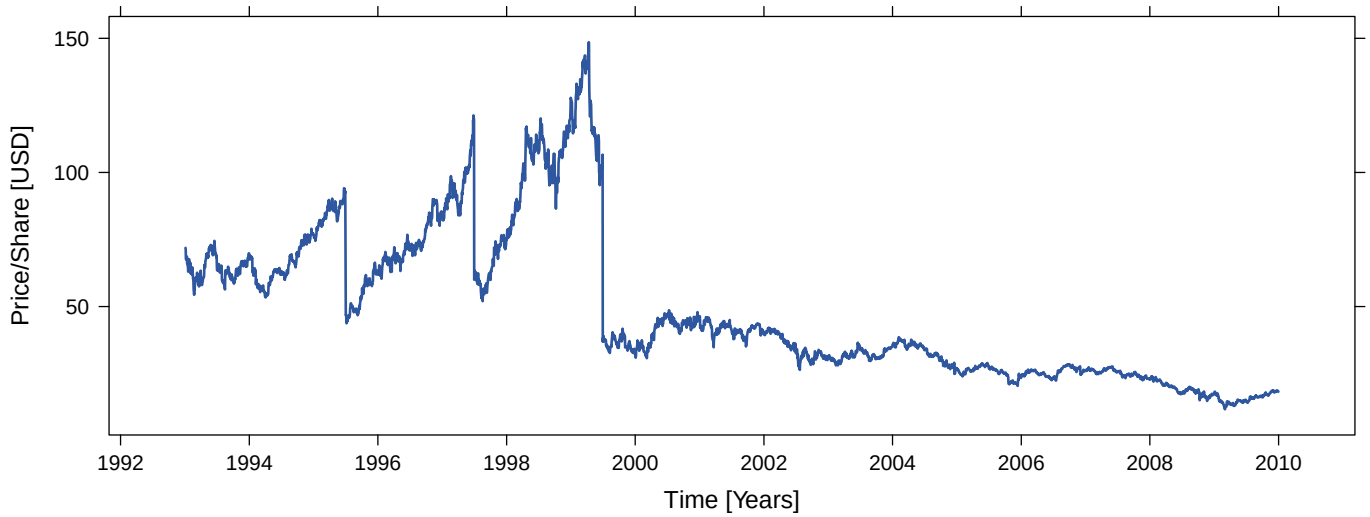

Fig. 43. Stock splits occurred on 3 July 1995 [split ratio 2:1], 1 July 1997 [split ratio 2:1], and 1 July 1999 [split ratio 3:1].

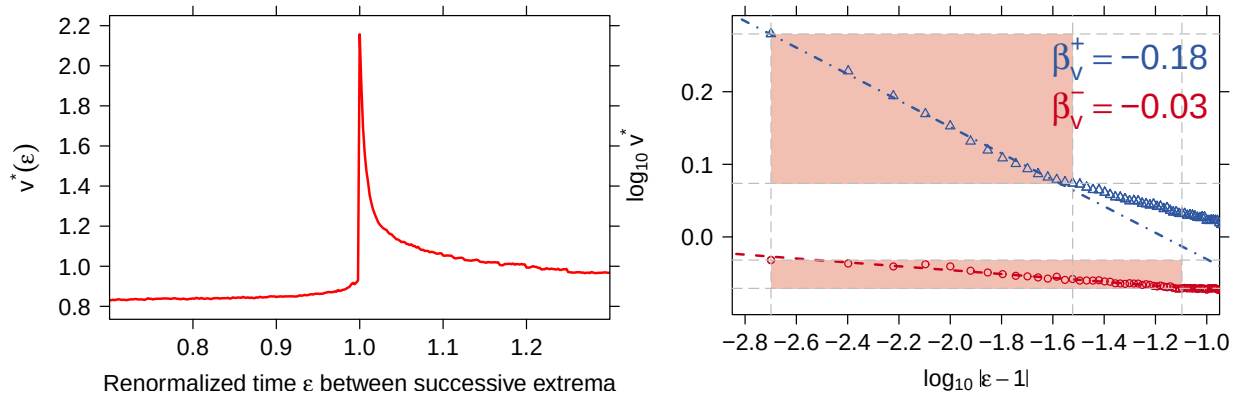

Fig. 44. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 25. Statistical test of power-law hypothesis for the PFE volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.17	0	**0.763**	−0.015	0	**1**
0.006	−0.178	0.0013	**0.301**	−0.018	0.0003	**0.724**
0.008	−0.182	0.0016	**0.379**	−0.011	0.0016	0.083
0.01	−0.183	0.0014	**0.61**	−0.011	0.0013	**0.133**
0.012	−0.188	0.0026	**0.125**	−0.015	0.0011	**0.164**
0.014	−0.19	0.0029	0.076	−0.017	0.0018	0.01
0.016	−0.191	0.0029	**0.108**	−0.019	0.002	0.002
0.018	−0.191	0.0026	**0.293**	−0.021	0.0021	0.002
0.02	−0.19	0.0023	**0.595**	−0.022	0.0021	0
0.022	−0.189	0.002	**0.821**	−0.023	0.0021	0
0.024	−0.188	0.0018	**0.953**	−0.024	0.002	0.001
0.026	−0.186	0.0016	**0.98**	−0.024	0.0018	0
0.028	−0.184	0.0016	**0.989**	−0.024	0.0018	0
0.03	−0.182	0.0024	**0.415**	−0.025	0.0017	0
0.032	−0.179	0.0033	0.003	−0.025	0.0016	0.001
0.034	−0.177	0.0039	0	−0.025	0.0015	0
0.036	−0.175	0.0044	0	−0.025	0.0014	0.001
0.038	−0.172	0.0049	0	−0.025	0.0013	0
0.04	−0.17	0.0054	0	−0.025	0.0013	0.003
0.042	−0.168	0.0057	0	−0.025	0.0012	0.004
0.044	−0.167	0.0058	0	−0.025	0.0012	0.004
0.046	−0.165	0.006	0	−0.025	0.0011	0.007
0.048	−0.164	0.0062	0	−0.026	0.001	0.007
0.05	−0.162	0.0062	0	−0.025	0.001	0.014
0.052	−0.161	0.0063	0	−0.025	0.001	0.01
0.054	−0.159	0.0065	0	−0.025	0.0009	0.016
0.056	−0.158	0.0066	0	−0.025	0.0009	0.023
0.058	−0.157	0.0067	0	−0.025	0.0009	0.027
0.06	−0.155	0.0068	0	−0.025	0.0008	0.03
0.062	−0.154	0.0069	0	−0.026	0.0008	0.025
0.064	−0.153	0.0069	0	−0.026	0.0008	0.073
0.066	−0.151	0.007	0	−0.026	0.0007	0.053
0.068	−0.15	0.0071	0	−0.026	0.0007	0.052
0.07	−0.149	0.0073	0	−0.026	0.0007	0.068
0.072	−0.148	0.0073	0	−0.026	0.0007	0.079
0.074	−0.147	0.0073	0	−0.026	0.0006	**0.1**
0.076	−0.146	0.0074	0	−0.026	0.0006	**0.124**

Procter & Gamble Company (The) (PG). The PG price time series contains 56,194,379 transactions.

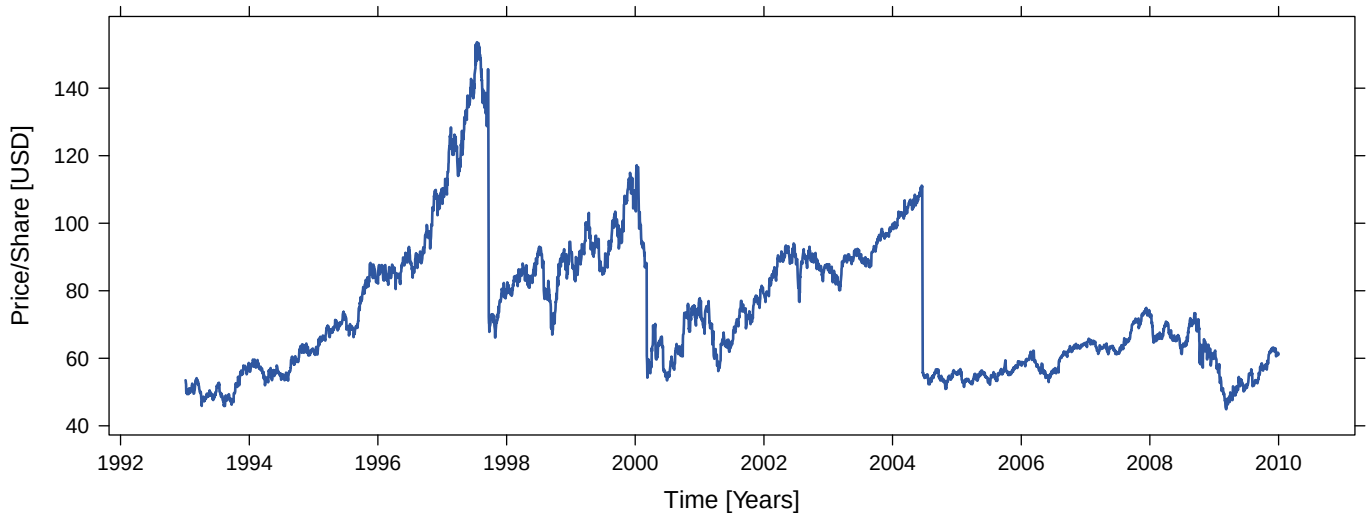

Fig. 45. Stock splits occurred on 22 September 1997 [split ratio 2:1] and 21 June 2004 [split ratio 2:1].

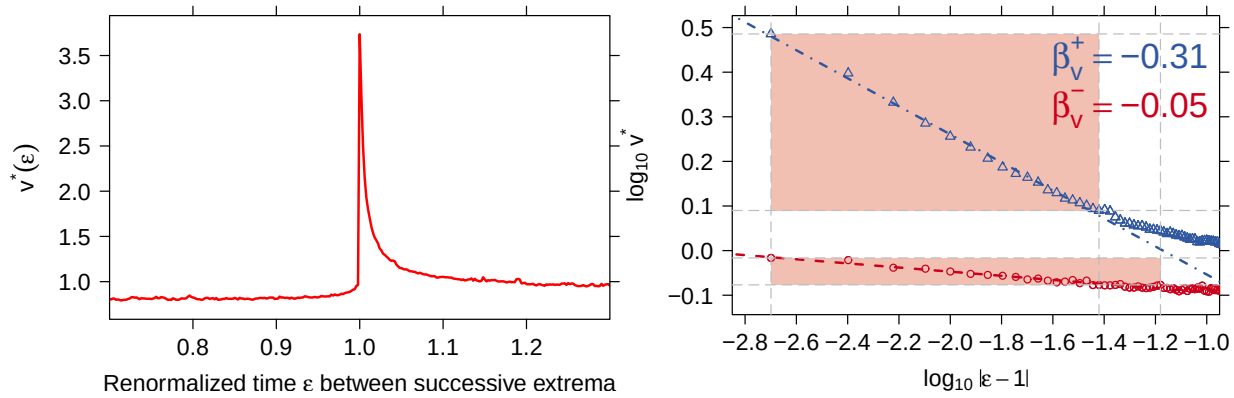

Fig. 46. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 26. Statistical test of power-law hypothesis for the PG volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.292	0	**1**	−0.016	0	**1**
0.006	−0.318	0.0043	0.011	−0.042	0.0044	0.001
0.008	−0.332	0.005	0.005	−0.043	0.0034	0.005
0.01	−0.333	0.0045	0.05	−0.045	0.0028	0.02
0.012	−0.333	0.0038	**0.266**	−0.047	0.0024	0.025
0.014	−0.334	0.0035	**0.594**	−0.048	0.0021	0.044
0.016	−0.334	0.0032	**0.827**	−0.048	0.0018	0.071
0.018	−0.334	0.0029	**0.967**	−0.048	0.0016	**0.126**
0.02	−0.331	0.0027	**0.989**	−0.049	0.0015	**0.147**
0.022	−0.328	0.0025	**0.998**	−0.048	0.0013	**0.235**
0.024	−0.327	0.0024	**0.998**	−0.049	0.0012	**0.249**
0.026	−0.325	0.0023	**1**	−0.05	0.0014	**0.157**
0.028	−0.324	0.0022	**1**	−0.05	0.0013	**0.183**
0.03	−0.322	0.0022	**1**	−0.049	0.001	**0.408**
0.032	−0.32	0.0023	**1**	−0.049	0.0009	**0.466**
0.034	−0.318	0.0029	**1**	−0.048	0.0009	**0.453**
0.036	−0.316	0.0035	**0.956**	−0.048	0.0008	**0.537**
0.038	−0.314	0.0041	**0.615**	−0.048	0.0009	**0.41**
0.04	−0.311	0.005	0.024	−0.049	0.001	**0.368**
0.042	−0.307	0.0059	0	−0.049	0.0009	**0.382**
0.044	−0.306	0.0062	0	−0.048	0.0008	**0.543**
0.046	−0.304	0.0064	0	−0.048	0.0007	**0.726**
0.048	−0.303	0.0064	0	−0.048	0.0006	**0.73**
0.05	−0.302	0.0066	0	−0.048	0.0006	**0.752**
0.052	−0.3	0.0068	0	−0.048	0.0006	**0.761**
0.054	−0.299	0.007	0	−0.048	0.0006	**0.797**
0.056	−0.297	0.0073	0	−0.048	0.0005	**0.826**
0.058	−0.295	0.0076	0	−0.048	0.0005	**0.851**
0.06	−0.293	0.0078	0	−0.048	0.0005	**0.836**
0.062	−0.292	0.008	0	−0.047	0.0005	**0.811**
0.064	−0.29	0.0081	0	−0.047	0.0005	**0.783**
0.066	−0.288	0.0083	0	−0.046	0.001	**0.152**
0.068	−0.286	0.0084	0	−0.046	0.0011	0.081
0.07	−0.284	0.0088	0	−0.045	0.0012	0.046
0.072	−0.282	0.0093	0	−0.045	0.0011	0.044
0.074	−0.281	0.0097	0	−0.045	0.0012	0.014
0.076	−0.279	0.01	0	−0.045	0.0012	0.025

AT&T Inc. (T). The T price time series contains 85,424,623 transactions.

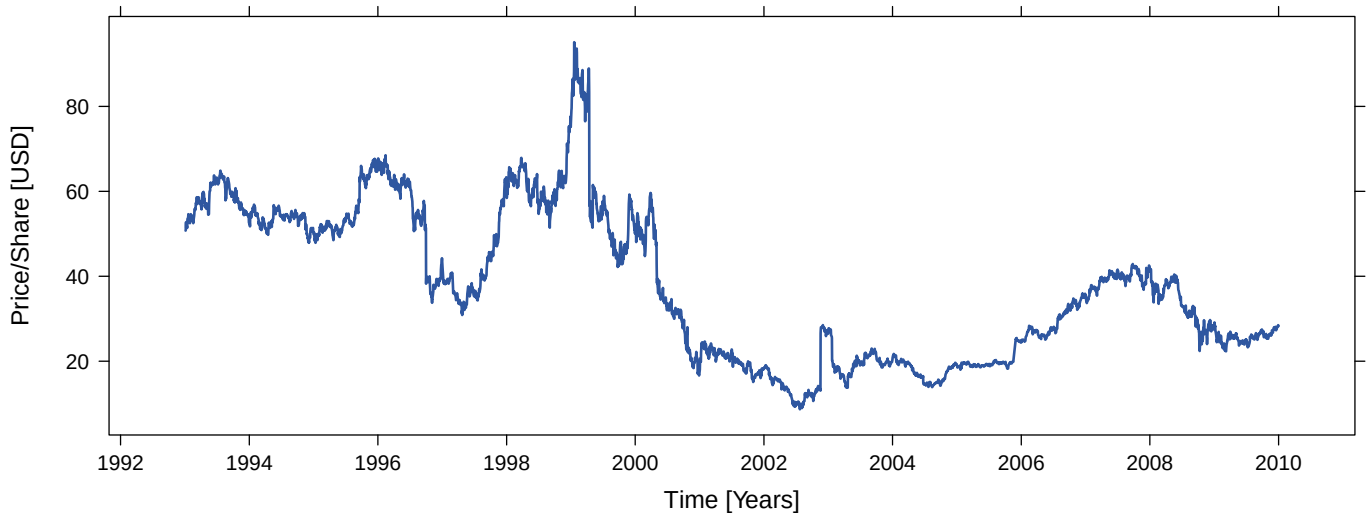

Fig. 47. Stock splits occurred on 26 May 1993 [split ratio 2:1] and 20 March 1998 [split ratio 2:1].

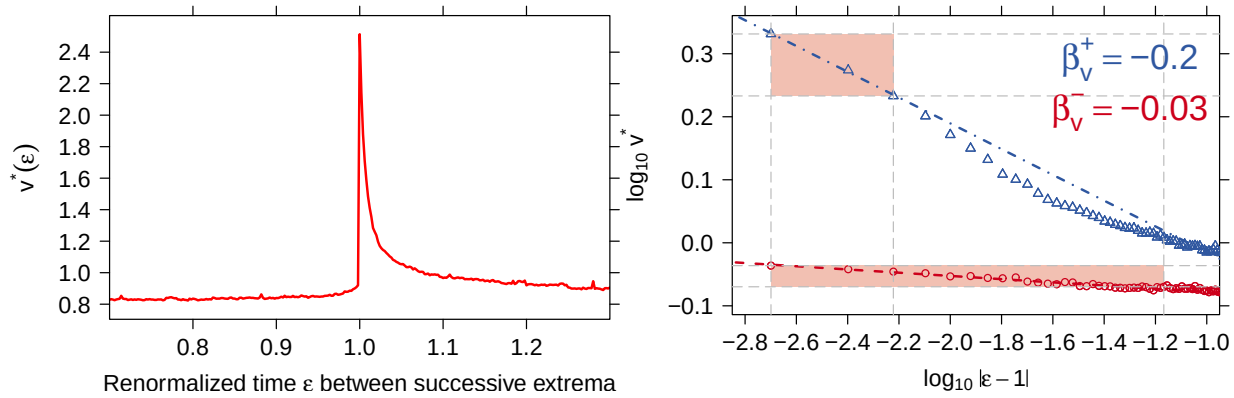

Fig. 48. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 27. Statistical test of power-law hypothesis for the T volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\mathrm{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\mathrm{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.19	0	**0.749**	−0.018	0	**1**
0.006	−0.204	0.0022	**0.123**	−0.019	0.0001	**0.887**
0.008	−0.215	0.0035	0.011	−0.02	0.0001	**0.984**
0.01	−0.226	0.0053	0	−0.023	0.001	**0.341**
0.012	−0.234	0.0064	0	−0.022	0.0007	**0.559**
0.014	−0.239	0.0065	0	−0.023	0.0007	**0.52**
0.016	−0.246	0.0071	0	−0.023	0.0006	**0.622**
0.018	−0.249	0.0071	0	−0.021	0.0005	**0.796**
0.02	−0.249	0.0066	0	−0.023	0.0008	**0.374**
0.022	−0.251	0.0065	0	−0.024	0.0013	0.06
0.024	−0.252	0.0063	0	−0.025	0.0015	0.016
0.026	−0.252	0.0059	0	−0.026	0.0017	0.006
0.028	−0.251	0.0055	0	−0.025	0.0014	0.008
0.03	−0.25	0.005	0	−0.025	0.0012	0.019
0.032	−0.248	0.0047	0	−0.026	0.0013	0.016
0.034	−0.246	0.0044	0.001	−0.026	0.0013	0.016
0.036	−0.244	0.0043	0.001	−0.026	0.0012	0.02
0.038	−0.241	0.0042	0.001	−0.026	0.0011	0.035
0.04	−0.24	0.0041	0.003	−0.026	0.0011	0.034
0.042	−0.238	0.004	0.002	−0.026	0.001	0.044
0.044	−0.236	0.004	0.003	−0.026	0.001	0.053
0.046	−0.234	0.004	0.001	−0.026	0.0009	0.069
0.048	−0.232	0.004	0	−0.027	0.0009	0.056
0.05	−0.231	0.0041	0	−0.027	0.0009	0.075
0.052	−0.228	0.0046	0	−0.027	0.0008	0.081
0.054	−0.226	0.005	0	−0.026	0.0008	**0.102**
0.056	−0.225	0.0053	0	−0.026	0.0008	0.096
0.058	−0.223	0.0057	0	−0.026	0.0008	**0.108**
0.06	−0.221	0.0061	0	−0.026	0.0007	**0.138**
0.062	−0.219	0.0066	0	−0.026	0.0007	**0.172**
0.064	−0.218	0.0068	0	−0.026	0.0007	**0.162**
0.066	−0.216	0.0072	0	−0.025	0.0007	**0.152**
0.068	−0.214	0.0075	0	−0.025	0.0007	**0.132**
0.07	−0.213	0.0077	0	−0.025	0.0008	0.049
0.072	−0.211	0.0079	0	−0.024	0.0009	0.029
0.074	−0.21	0.0081	0	−0.024	0.0009	0.009
0.076	−0.209	0.0083	0	−0.024	0.0009	0.004

The Travelers Companies, Inc. Common Stock (TRV). The TRV price time series contains 16,994,915 transactions.

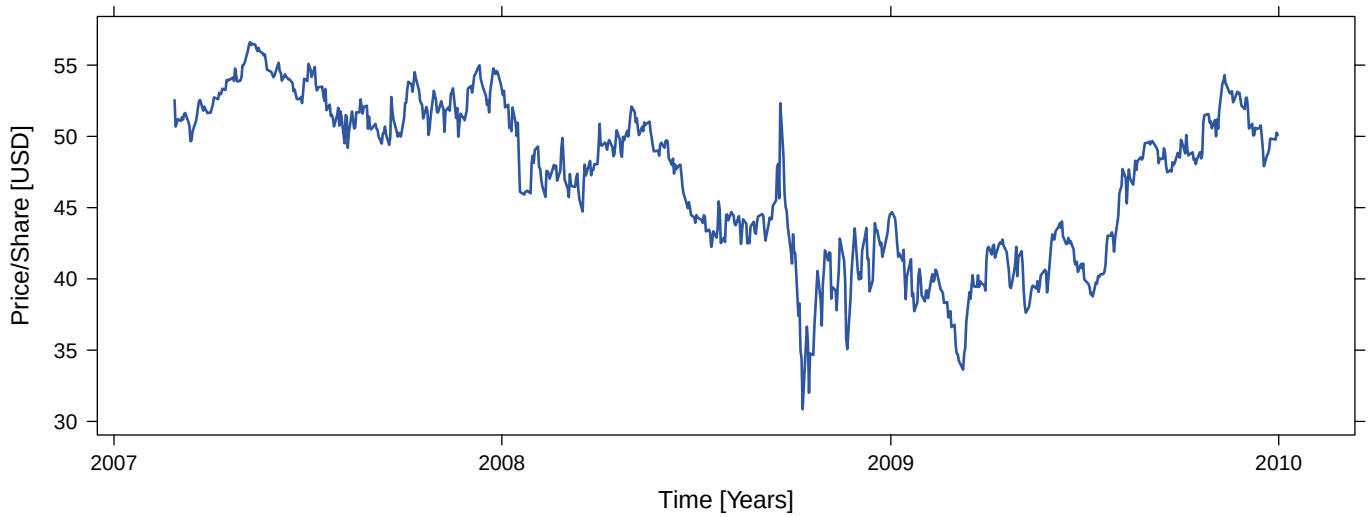

Fig. 49. Stock splits occurred on 7 June 1994 [split ratio 2:1] and 12 May 1998 [split ratio 2:1].

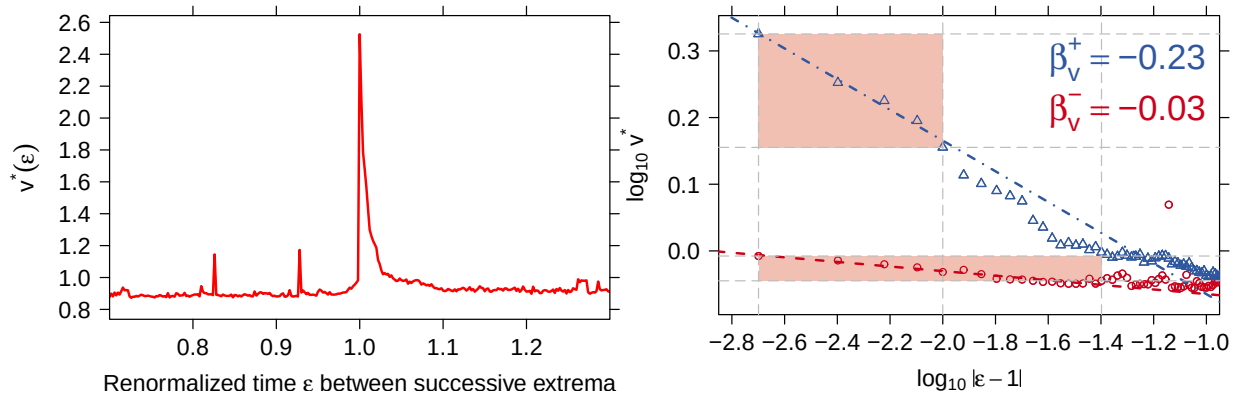

Fig. 50. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 28. Statistical test of power-law hypothesis for the TRV volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.242	0	**1**	−0.022	0	**1**
0.006	−0.213	0.0048	0.062	−0.025	0.0005	**0.825**
0.008	−0.212	0.0038	**0.174**	−0.027	0.0008	**0.868**
0.01	−0.23	0.0045	**0.12**	−0.032	0.0019	**0.479**
0.012	−0.254	0.0099	0	−0.03	0.0011	**0.848**
0.014	−0.264	0.0116	0	−0.031	0.0012	**0.809**
0.016	−0.267	0.0111	0	−0.035	0.0021	**0.329**
0.018	−0.267	0.01	0	−0.036	0.0025	**0.147**
0.02	−0.265	0.009	0	−0.037	0.0024	**0.133**
0.022	−0.269	0.0087	0	−0.037	0.0023	**0.141**
0.024	−0.272	0.0084	0	−0.038	0.0022	**0.116**
0.026	−0.277	0.008	0	−0.038	0.002	**0.182**
0.028	−0.28	0.0085	0	−0.038	0.0019	**0.193**
0.03	−0.28	0.008	0	−0.038	0.0018	**0.235**
0.032	−0.28	0.0075	0	−0.038	0.0016	**0.269**
0.034	−0.277	0.0066	0	−0.037	0.0015	**0.297**
0.036	−0.275	0.0064	0.001	−0.035	0.0014	**0.383**
0.038	−0.272	0.0063	0	−0.035	0.0013	**0.404**
0.04	−0.27	0.0061	0.001	−0.034	0.0015	**0.273**
0.042	−0.268	0.006	0.002	−0.032	0.0022	0.025
0.044	−0.265	0.006	0	−0.031	0.0026	0.005
0.046	−0.263	0.0059	0.001	−0.029	0.0033	0
0.048	−0.259	0.006	0	−0.027	0.0039	0
0.05	−0.256	0.0061	0	−0.026	0.0042	0
0.052	−0.253	0.0065	0	−0.026	0.0039	0
0.054	−0.249	0.0072	0	−0.027	0.0037	0
0.056	−0.246	0.0082	0	−0.026	0.0036	0
0.058	−0.243	0.0089	0	−0.026	0.0035	0
0.06	−0.24	0.0097	0	−0.026	0.0034	0
0.062	−0.238	0.0104	0	−0.026	0.0035	0
0.064	−0.234	0.0112	0	−0.025	0.0034	0
0.066	−0.231	0.012	0	−0.025	0.0035	0
0.068	−0.228	0.0127	0	−0.023	0.0036	0
0.07	−0.225	0.0133	0	−0.023	0.0037	0
0.072	−0.222	0.0137	0	−0.013	0.0092	0
0.074	−0.22	0.0139	0	−0.014	0.0084	0
0.076	−0.217	0.0142	0	−0.015	0.0077	0

United Technologies Corporation (UTX). The UTX price time series contains 30,464,044 transactions.

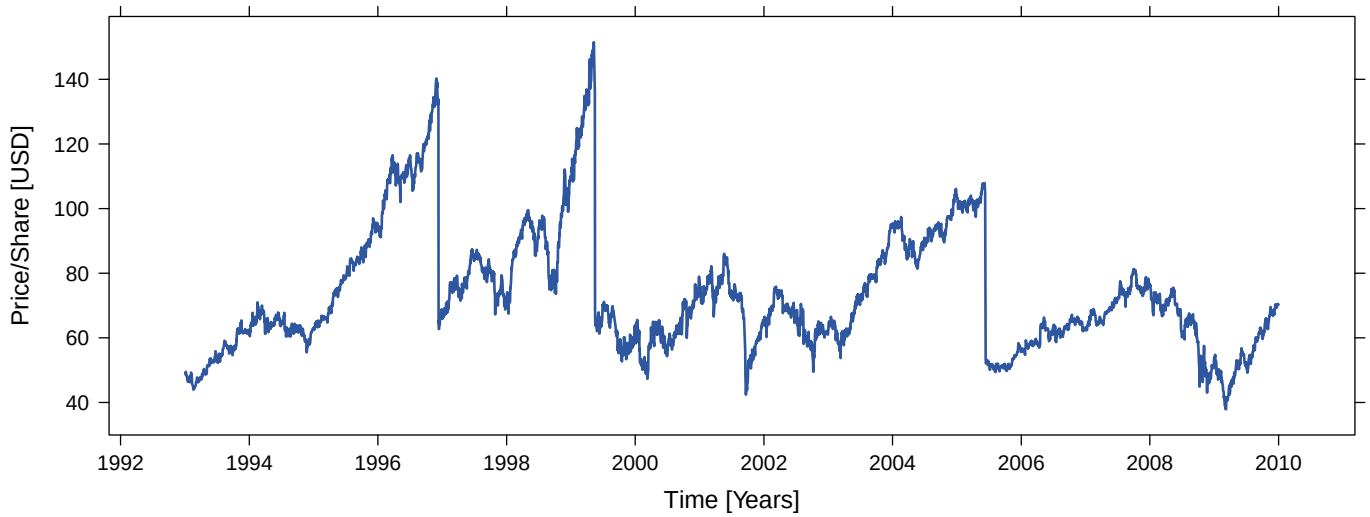

Fig. 51. Stock splits occurred on 11 December 1996 [split ratio 2:1], 18 May 1999 [split ratio 2:1], and 13 June 2005 [split ratio 2:1].

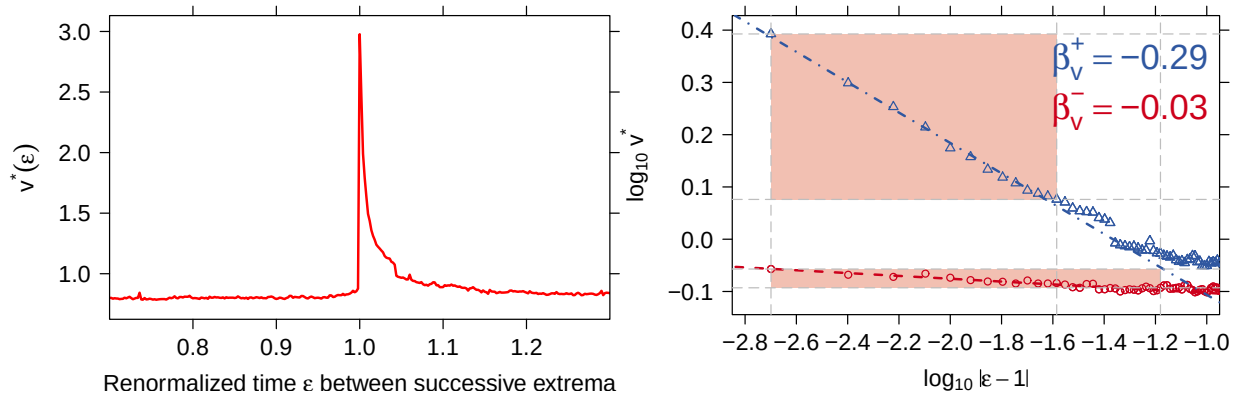

Fig. 52. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 29. Statistical test of power-law hypothesis for the UTX volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.312	0	**1**	−0.036	0	**1**
0.006	−0.294	0.0029	**0.216**	−0.031	0.0007	**0.701**
0.008	−0.294	0.0023	**0.478**	−0.018	0.0039	0.021
0.01	−0.304	0.0026	**0.582**	−0.019	0.0029	0.051
0.012	−0.303	0.002	**0.86**	−0.022	0.0021	**0.176**
0.014	−0.305	0.0021	**0.908**	−0.024	0.0017	**0.281**
0.016	−0.305	0.0018	**0.966**	−0.025	0.0015	**0.384**
0.018	−0.303	0.0015	**0.997**	−0.026	0.0013	**0.417**
0.02	−0.301	0.0013	**0.996**	−0.024	0.0011	**0.48**
0.022	−0.298	0.0021	**0.988**	−0.025	0.001	**0.541**
0.024	−0.294	0.0034	**0.801**	−0.025	0.001	**0.611**
0.026	−0.29	0.0047	**0.144**	−0.024	0.0009	**0.669**
0.028	−0.286	0.0058	0.001	−0.024	0.0008	**0.704**
0.03	−0.283	0.0063	0	−0.025	0.0008	**0.689**
0.032	−0.281	0.0067	0	−0.026	0.001	**0.418**
0.034	−0.278	0.0072	0	−0.025	0.0007	**0.729**
0.036	−0.274	0.0077	0	−0.025	0.0009	**0.459**
0.038	−0.272	0.0079	0	−0.026	0.0006	**0.784**
0.04	−0.269	0.0081	0	−0.026	0.001	**0.385**
0.042	−0.267	0.0082	0	−0.027	0.001	**0.3**
0.044	−0.271	0.0074	0	−0.027	0.0011	**0.243**
0.046	−0.273	0.0068	0	−0.028	0.0014	0.064
0.048	−0.275	0.0064	0	−0.028	0.0015	0.043
0.05	−0.276	0.0061	0	−0.028	0.0015	0.036
0.052	−0.276	0.0059	0	−0.028	0.0014	0.038
0.054	−0.277	0.0057	0	−0.028	0.0014	0.045
0.056	−0.277	0.0056	0	−0.028	0.0013	0.062
0.058	−0.276	0.0054	0	−0.027	0.0011	**0.133**
0.06	−0.274	0.0053	0	−0.027	0.0009	**0.23**
0.062	−0.273	0.0052	0	−0.027	0.001	**0.231**
0.064	−0.272	0.005	0.001	−0.027	0.0009	**0.235**
0.066	−0.271	0.0049	0.001	−0.027	0.0008	**0.311**
0.068	−0.271	0.0048	0.001	−0.026	0.0012	0.032
0.07	−0.27	0.005	0	−0.025	0.0016	0.001
0.072	−0.269	0.0052	0	−0.025	0.0016	0.003
0.074	−0.268	0.0057	0	−0.024	0.0017	0.001
0.076	−0.267	0.0059	0	−0.024	0.0018	0.001

Verizon Communications Inc. Common Stock (VZ). The VZ price time series contains 55,684,512 transactions.

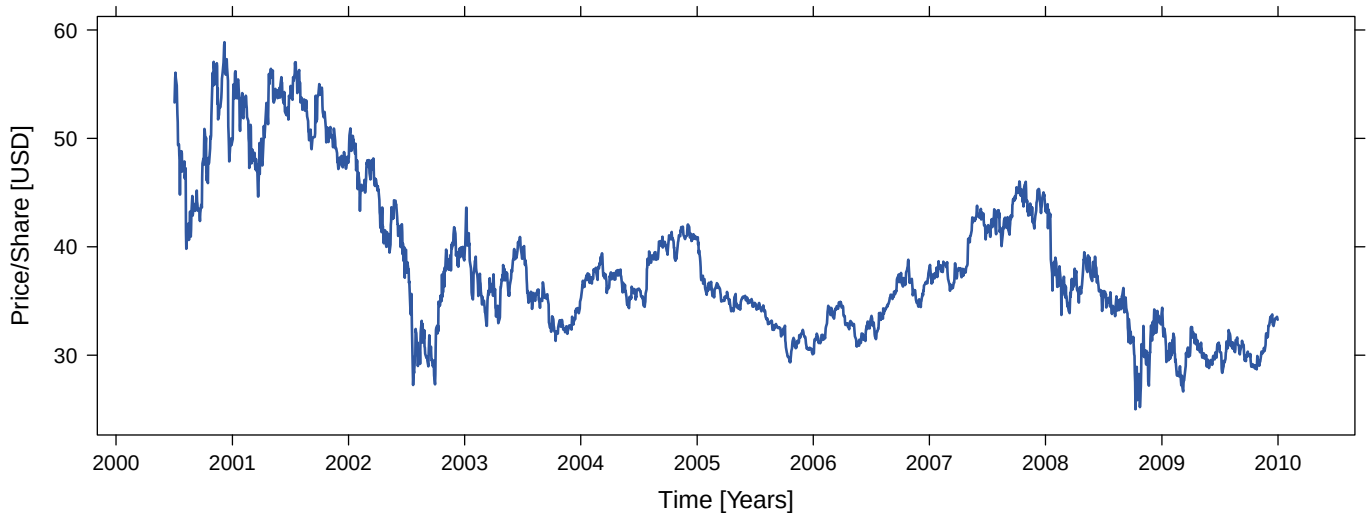

Fig. 53. A stock split occurred on 30 June 1998 [split ratio 2:1].

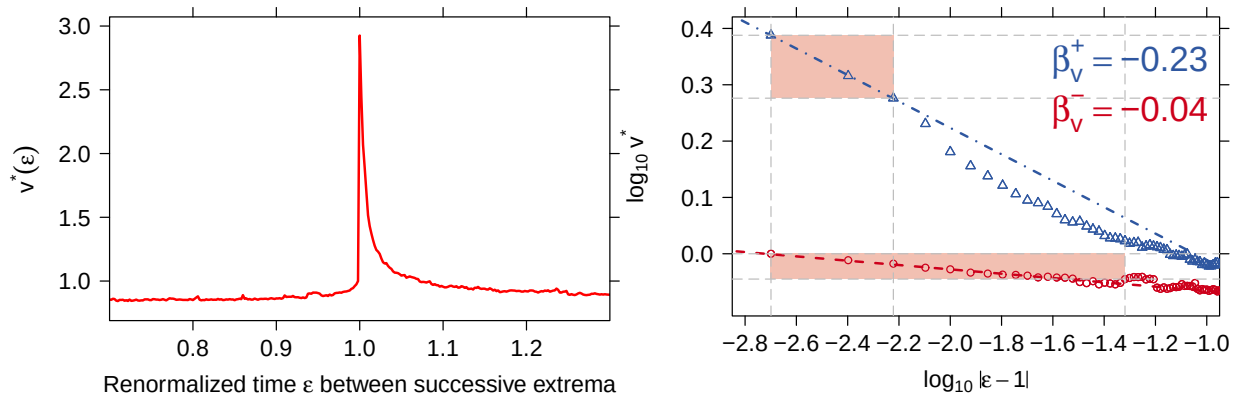

Fig. 54. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 30. Statistical test of power-law hypothesis for the VZ volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.239	0	**0.727**	−0.038	0	**1**
0.006	−0.234	0.0007	**0.688**	−0.036	0.0001	**0.916**
0.008	−0.254	0.0049	0.003	−0.04	0.0007	**0.697**
0.01	−0.283	0.0113	0	−0.039	0.0006	**0.839**
0.012	−0.298	0.0132	0	−0.041	0.0009	**0.612**
0.014	−0.304	0.0127	0	−0.042	0.0009	**0.568**
0.016	−0.306	0.0118	0	−0.042	0.0007	**0.708**
0.018	−0.308	0.0109	0	−0.041	0.0005	**0.896**
0.02	−0.308	0.0101	0	−0.04	0.0004	**0.947**
0.022	−0.305	0.0093	0	−0.04	0.0004	**0.948**
0.024	−0.302	0.0087	0	−0.039	0.0006	**0.791**
0.026	−0.3	0.0081	0	−0.039	0.0007	**0.692**
0.028	−0.299	0.0077	0	−0.038	0.0009	**0.425**
0.03	−0.296	0.0074	0	−0.038	0.001	**0.319**
0.032	−0.293	0.0072	0	−0.038	0.0007	**0.62**
0.034	−0.29	0.007	0	−0.039	0.0007	**0.578**
0.036	−0.288	0.0068	0	−0.039	0.0006	**0.74**
0.038	−0.285	0.0067	0	−0.039	0.0008	**0.44**
0.04	−0.283	0.0066	0	−0.039	0.0008	**0.504**
0.042	−0.281	0.0064	0	−0.039	0.0007	**0.511**
0.044	−0.279	0.0064	0	−0.04	0.0007	**0.507**
0.046	−0.276	0.0064	0	−0.039	0.0006	**0.708**
0.048	−0.274	0.0064	0	−0.038	0.001	**0.177**
0.05	−0.272	0.0063	0	−0.036	0.0018	0
0.052	−0.269	0.0064	0	−0.035	0.0027	0
0.054	−0.266	0.0068	0	−0.034	0.0034	0
0.056	−0.264	0.0072	0	−0.032	0.0039	0
0.058	−0.262	0.0078	0	−0.032	0.0042	0
0.06	−0.259	0.0085	0	−0.031	0.0044	0
0.062	−0.256	0.0091	0	−0.03	0.0046	0
0.064	−0.254	0.0096	0	−0.031	0.0041	0
0.066	−0.251	0.0101	0	−0.031	0.0037	0
0.068	−0.249	0.0104	0	−0.032	0.0035	0
0.07	−0.247	0.0109	0	−0.033	0.0032	0
0.072	−0.245	0.0111	0	−0.033	0.003	0
0.074	−0.244	0.0113	0	−0.033	0.0029	0
0.076	−0.242	0.0115	0	−0.033	0.0028	0

Wal-Mart Stores, Inc. Common Stock (WMT). The WMT price time series contains 81,511,936 transactions.

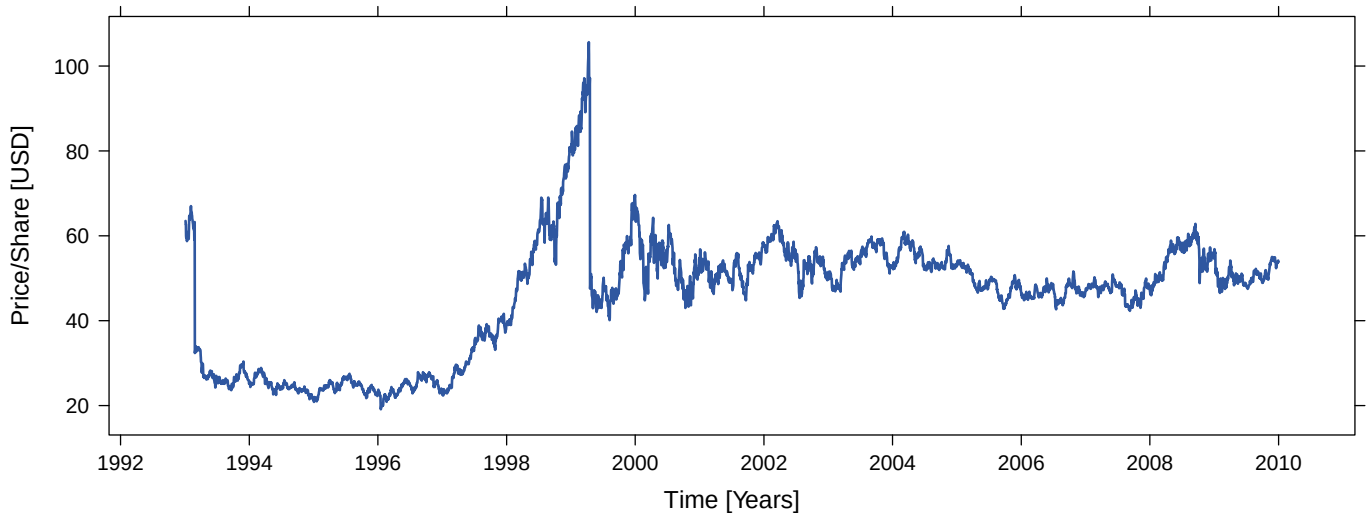

Fig. 55. Stock splits occurred on 26 February 1993 [split ratio 2:1] and 20 April 1999 [split ratio 2:1].

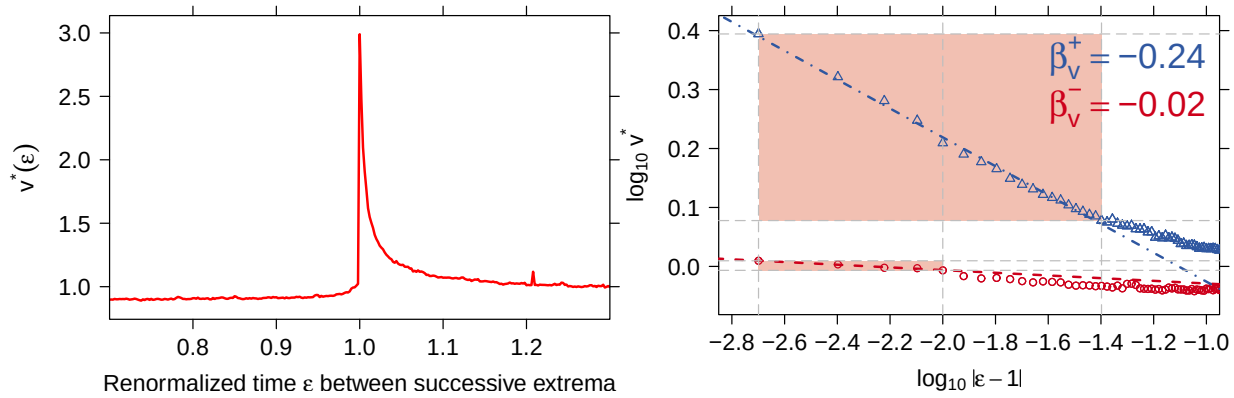

Fig. 56. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 31. Statistical test of power-law hypothesis for the WMT volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.242	0	**1**	−0.02	0	**1**
0.006	−0.238	0.0006	**0.67**	−0.024	0.0006	**0.568**
0.008	−0.242	0.0007	**0.892**	−0.022	0.0004	**0.836**
0.01	−0.257	0.0051	0	−0.022	0.0002	**0.966**
0.012	−0.262	0.0057	0	−0.028	0.0025	0.003
0.014	−0.262	0.005	0	−0.033	0.0035	0
0.016	−0.26	0.0043	0.024	−0.034	0.0033	0
0.018	−0.26	0.0039	0.08	−0.034	0.003	0
0.02	−0.26	0.0036	**0.269**	−0.036	0.0029	0
0.022	−0.259	0.0033	**0.508**	−0.037	0.0027	0
0.024	−0.257	0.003	**0.71**	−0.036	0.0025	0
0.026	−0.256	0.0029	**0.853**	−0.036	0.0023	0
0.028	−0.253	0.0027	**0.924**	−0.036	0.0021	0
0.03	−0.252	0.0026	**0.958**	−0.036	0.002	0
0.032	−0.25	0.0026	**0.971**	−0.037	0.0018	0.003
0.034	−0.249	0.0028	**0.929**	−0.037	0.0017	0
0.036	−0.247	0.003	**0.755**	−0.037	0.0016	0
0.038	−0.245	0.0034	**0.365**	−0.037	0.0016	0.003
0.04	−0.244	0.0035	**0.203**	−0.036	0.0015	0.008
0.042	−0.243	0.0037	0.087	−0.036	0.0014	0.001
0.044	−0.24	0.0041	0.002	−0.036	0.0014	0.008
0.046	−0.239	0.0045	0	−0.036	0.0013	0.006
0.048	−0.237	0.0048	0	−0.036	0.0013	0.008
0.05	−0.235	0.0053	0	−0.035	0.0013	0.002
0.052	−0.233	0.0058	0	−0.034	0.0013	0.004
0.054	−0.231	0.0063	0	−0.033	0.0013	0.003
0.056	−0.229	0.0068	0	−0.033	0.0012	0.006
0.058	−0.227	0.0074	0	−0.033	0.0012	0.008
0.06	−0.226	0.0077	0	−0.033	0.0012	0.008
0.062	−0.224	0.008	0	−0.033	0.0011	0.005
0.064	−0.223	0.0081	0	−0.033	0.0011	0.011
0.066	−0.221	0.0082	0	−0.033	0.0011	0.011
0.068	−0.22	0.0083	0	−0.033	0.001	0.013
0.07	−0.219	0.0085	0	−0.033	0.001	0.012
0.072	−0.217	0.0086	0	−0.033	0.0011	0.001
0.074	−0.216	0.0088	0	−0.032	0.0012	0.001
0.076	−0.214	0.009	0	−0.032	0.0013	0.001

Exxon Mobil Corporation Common Stock (XOM). The XOM price time series contains 116,030,372 transactions.

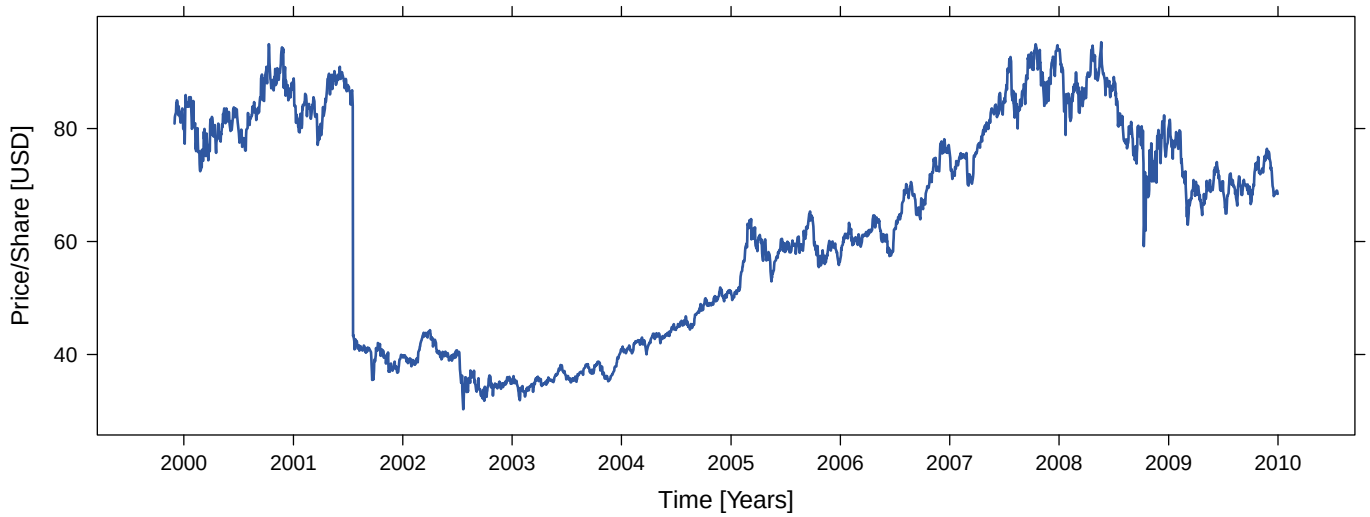

Fig. 57. Stock splits occurred on 14 April 1997 [split ratio 2:1] and 19 July 2001 [split ratio 2:1].

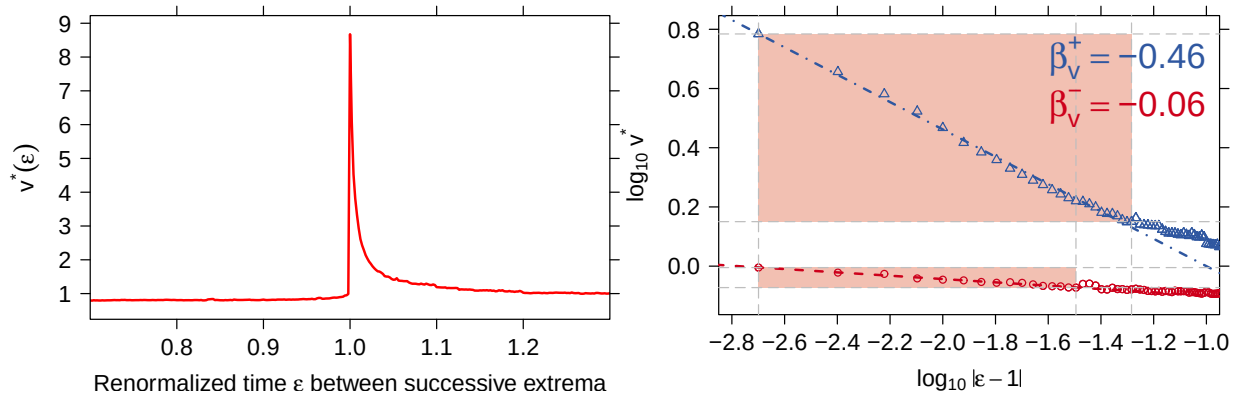

Fig. 58. *left*: aggregated volume $v^*(\varepsilon)$. *right*: $v^*(\varepsilon)$ versus $|\varepsilon - 1|$ as a log–log histogram.

Table 32. Statistical test of power-law hypothesis for the XOM volume time series: Scaling parameters of the hypothesized power-law model are shown for both $v^*(\varepsilon)$ before (β_v^-) and $v^*(\varepsilon)$ after (β_v^+) the trend switching point $\varepsilon = 1$ in dependence of $|\varepsilon - 1|_{\text{cut}}$. Additionally, the corresponding values of the KS statistic, D_v^- and D_v^+, are given. The power-law hypothesis is supported if the p-value is larger than 0.1.

$\lvert\varepsilon - 1\rvert_{\text{cut}}$	β_v^+	D_v^+	p-value	β_v^-	D_v^-	p-value
0.004	−0.425	0	**1**	−0.056	0	**1**
0.006	−0.425	0	**0.996**	−0.045	0.0017	0.068
0.008	−0.432	0.0017	**0.917**	−0.056	0.0023	0.013
0.01	−0.446	0.0054	0.005	−0.058	0.0022	0.008
0.012	−0.464	0.0088	0	−0.057	0.0018	0.036
0.014	−0.473	0.0103	0	−0.057	0.0016	0.078
0.016	−0.477	0.0104	0	−0.057	0.0014	**0.141**
0.018	−0.482	0.0104	0	−0.055	0.0012	**0.22**
0.02	−0.484	0.01	0	−0.054	0.0013	**0.115**
0.022	−0.486	0.0096	0	−0.054	0.0012	**0.143**
0.024	−0.486	0.0091	0	−0.055	0.0009	**0.429**
0.026	−0.486	0.0086	0	−0.055	0.0008	**0.557**
0.028	−0.486	0.0082	0.001	−0.055	0.0007	**0.592**
0.03	−0.486	0.0079	0.002	−0.055	0.0007	**0.695**
0.032	−0.484	0.0076	0.013	−0.056	0.0007	**0.735**
0.034	−0.481	0.0073	0.06	−0.053	0.0016	0.003
0.036	−0.478	0.0072	**0.12**	−0.05	0.003	0
0.038	−0.476	0.007	**0.188**	−0.049	0.0035	0
0.04	−0.475	0.0069	**0.382**	−0.05	0.0029	0
0.042	−0.473	0.0068	**0.459**	−0.051	0.0025	0
0.044	−0.47	0.0068	**0.414**	−0.05	0.0025	0
0.046	−0.467	0.0068	**0.344**	−0.051	0.0024	0
0.048	−0.466	0.0068	**0.356**	−0.051	0.0023	0
0.05	−0.464	0.0067	**0.294**	−0.051	0.0021	0
0.052	−0.461	0.0068	**0.156**	−0.051	0.0021	0
0.054	−0.457	0.007	0.009	−0.05	0.0021	0
0.056	−0.455	0.0071	0	−0.05	0.0021	0
0.058	−0.452	0.0072	0	−0.05	0.002	0
0.06	−0.449	0.0074	0	−0.05	0.0019	0
0.062	−0.446	0.0077	0	−0.05	0.0018	0
0.064	−0.443	0.0087	0	−0.05	0.0018	0
0.066	−0.439	0.0098	0	−0.05	0.0017	0
0.068	−0.437	0.0104	0	−0.05	0.0017	0
0.07	−0.435	0.0109	0	−0.05	0.0016	0
0.072	−0.433	0.0113	0	−0.05	0.0016	0
0.074	−0.431	0.0117	0	−0.05	0.0015	0
0.076	−0.428	0.0122	0	−0.05	0.0015	0